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"I hold every man a debtor to his profession from the which as men doe seek to receive countenance and profit, so ought they of duty to endeavour themselves by way of amends to be a help thereunto."—Lord Bacon.

Selections.

Electricity as a Therapeutic Agent.—By Charles Dibdin, Esq., L.S.A.

I take the liberty, generally allowed to a subscriber, of intruding on your columns, I trust for the benefit of medical science. I have ventured on a communication from a distant, although not at present an uninteresting portion of the globe, in consequence of observing the many quackeries at present practised in the old country under the various names, and which practice, I conceive, very much tends to divert the genuine practitioner from a legitimate use of the electric fluid.

The following case I hope will prove the efficacy of a proper application of that agent:—

J. S——, a young gentleman of this town, applied to me on Jan. 22, 1853, with contraction of the right arm. The history of the case was, that he had fallen from his horse on Dec. 29, 1852, and the animal had trodden on his arm just above the elbow-joint; he paid no attention to it, but kept it up in the flexed position. When I saw it, the ecchymosis, which had been considerable, had subsided, and the arm was firmly fixed in a state of semiflexion. There was a tumour at the origin of the brachialis anticus on the inner side, but the exact parts indicated were not clearly defined, on account of the swelling being considerable; although the tendon of the biceps was contracted, it appeared healthy.

I applied the cantharides plaster over the tumour, and found on the next day that it was softer and more diffused: and on the 25th of January, the swelling having greatly subsided, I defined two patches of what Mr. Fergusson would call *solid œdema*. One on the inner edge of the brachialis anticus, the other on the inner edge of the biceps, the two so situated that I could grate them one upon the other. Still the

arm was in its semiflexed condition, and I determined to have recourse to electricity, which I commenced on the 25th of January, and continued daily, passing the current chiefly from the origin of the brachialis anticus.

On the 26th I painted the tumours with iodine, and directed the patient to continue its application, which he did rather severely for a few days, but without diminution of the œdema. I continued steadily with the electricity, and on the 20th of February had the satisfaction to discharge my patient with the arm perfectly straightened.—*Lancet, July* 9.

On Artificial Dilatation of the os Uteri.—By JAMES GILMOUR, Esq., L.F.P. & S. Glasgow, L.S.A. Lond.

In my paper on "Artificial Dilatation of the Os Uteri," published in *The Lancet* for April, 1852, I gave a general sketch of the opinions of various authors for and against that operation in tedious and lingering labour, and I inpartially quoted some of those writers who were opposed to that proceeding. I also detailed the various states of the os in which it was likely to be beneficial. I was of opinion that I had opened the subject for amicable discussion; but I found that my arguments were misunderstood, and that there existed a considerable amount of ignorance of the subject. I was prepared for fair and impartial criticism; but the quotations were distorted, and their meaning misrepresented. All the arguments against dilatation centred into one focus, which meant that there should be no interference with natural labour, and that length of time was unimportant as regards either mother or child.

A more attentive study of the subject had indelibly impressed its importance on my mind, and enabled me to extend the number of authorities in its favour; and I proceed, in the pursuance of a promise made in my last communication, to redeem that pledge, to combat the objections made to that paper, and to add additional facts and arguments in support of that useful and beneficial process of gently dilating the os uteri in those cases of tedious labour where nature appears unable to terminate the delivery within a given time, and where such delay would probably induce a train of evils, the result of which might be detrimental to the perfect recovery of mother and child. "Was the structure connected with parturition perfectly and naturally correct, and did its action always proceed in conformity with principles which nature has established, there can be no doubt but that the process would be an easy one, and require little, if any, interference from art. ..... A variety of deviations, however, in the above circumstances take place, which alter and modify its actions and their effects, so as to render it a process of difficulty, and to call for adventitious assistance."—(Power's Midwifery, 1819, page 44.) "The causes of insufficient uterine action are so numerous that the modifications to which they give rise are almost endless, and demand no little variety of treatment. ..... If the

cause continues, the case becomes much protracted, and serious consequences may ensue, such as hysterical symptoms, or even convulsions, inflammation of some organ, general fever, or complete or dangerous exhaustion, hæmorrhage, retained placenta, or hour-glass contraction of the uterus."—(Rigby's Midwifery, page 208.)

Tedious labour, when the presentation is natural, the pelvis of sufficient capacity, and the maternal powers unable to finish the first stage without future risk, demands our serious consideration. 'Tis true the pains may be inefficient from the various causes, many of which are easily remediable, such as a redundancy of the liquor amnii, and a dense condition of the membranes. When these exist, we hesitate not to rupture the membranes, to increase the parturient paroxysms, and truly with great benefit.

There seems a considerable difference of opinion with authors as to what really constitutes tedious labour. Some define it as "those labours which, though protracted, are ultimately accomplished by the powers of nature, unassisted by art" (Lond. Pract. 1816); others, "where the head of the child presents, and the labour is terminated without manual or instrumental assistance, but is prolonged beyond twenty-four hours, from causes which occasion delay in the first stage" (Churchill's Manual, 1841); whilst a third party's definition is "if the expulsive force of the uterus be diminished, or the resistance to the passage of the child be increased, the labour must be protracted beyond the usual time, or a more than ordinary degree of pain must be endured (Burns, eighth edition, p. 404).

Churchill's definition appears the most correct, as the chief impediments exist in the first stage; we may certainly have much delay in the second stage, but as a rule, labour is more tedious before full dilatation of the os uteri, and subsequent difficulties will often be classified under preternatural or complicated labours.

Having seen what constitutes tedious labour, it becomes an important question, how are we to treat it? "The woman becomes anxious and dejected; the pains occasionally remit and recur with violence and frequency; the progress is slow and imperceptible; the spirits exhausted from restlessness and apprehension. After a long and obstinate conflict, by the reiterated succession of feeble efforts, the head of the fœtus moulds itself to the passage, the cranial bones are compressed, the resisting yield to the propelling powers, and the birth, after two or three days, is at last completed" (Hamilton, 1787, p. 226). Now the accoucheur who would look on and see all this distressing train of symptoms take place, without endeavouring to administer some remedial assistance, would, to say the last be highly culpable. It would be worse than folly to wait for an imaginary renewal of uterine propulsive power, for assuredly it will not always take place; and if it does, it will be at a considerable sacrifice to the recovery of the mother. Some say, we may try the efficacy of ergot of rye, and so we may, and often (but not always) succeed. Now, here I can confidently recommend a trial of gentle dilatation of the os uteri with the finger; we will soon

experience increased uterine action, and convert a labour, which otherwise would have been instrumental, into one of easy delivery. True, we are not called on to act here on the moment, as we would be obliged to do if it were one of placenta prævia, or convulsions; nevertheless, our decision may be of material importance to mother and child subsequently; and waiting too long, or exhibiting propulsive medicines, may create alarming difficulties for which we were unprepared, and may terminate in a disastrous manner for the child, and the mother not altogether escape. "A case which may in the first instance, assume a more lingering character, may in time be complicated with appearances of first-rate difficulty and danger" (Ramsbotham, 1821, vol. i, p. 220).

In a paper read before the Medical Soceity of London by Dr. Merriman (*The Lancet*, vol. ii. 1852, p. 616), an attempt has been made to show that the principles advocated by me were erroneous. According to statistics copied from Collins, out of 15,850 cases of labour of all kinds, only 766 were prolonged beyond twenty-four hours. He argues that we are not to use any auxiliary means of hastening tedious labours but trust entirely to the natural powers. I confess I am unable to appreciate the force of his arguments. We know that danger increases as the case is prolonged, and the annexed statistical quotations will be found more appropriate to the solution of the question at issue. "Beyond a certain period, it is proved by the experience of all practitioners that a woman cannot continue in labour, whatever the cause of the difficulty may be, *without certain hazard*; and that the danger is, in most cases, proportionate to the duration of labour. In the course of 57 years, 78,000 women were delivered in the Dublin Lying-in Hospital, of whom one out of every ninety-two died, and one child out of every eighteen was still-born. In women who were in labour of their first children from thirty to forty hours, one in every thirty-four died, and one child in five was still-born; when labour was protracted from forty to fifty hours, one woman in thirteen died." (Lee's Midwifery, lecture xxii.)

Of 5700 cases quoted by Dr. Murphy, 213 were prolonged beyond twenty-four hours; and of these it is of importance to note that eighty children, or one-third of the whole number, were born dead. (See *Medical Gazette*, 1846, vol. ii. p. 527.) Dr. Merriman has certainly quoted statistics very favourable to his own views, but I must not omit to remind him that though Collins' table only exhibits about five per cent. of tedious cases, yet Dr. Churchill had twelve per cent., 166 cases out of 1285. (Churchill's Manual, 1842, p. 189.)

In the obstetric practice of Dr. Lawrence, of Montrose, there occurred 360 cases, thirteen of which were tedious and difficult; five were primiparæ, and eight subsequent births; ten were delivered by the natural powers, and three by the forceps. I insert his concluding remarks:—"I would, in closing this communication, advert to two points of practice, of which my experience is decidedly in favour, although I cannot offer any statistics regarding them. The first is gen-

tle dilatation of the os uteri when the pains are at all inefficient. That uterine action is rendered much more brisk and effective in this manner I entertain not the smallest doubt; whilst, on the other hand, I have never experienced anything unfavourable to result from it." (*Edinburgh Monthly Journal*, Feb. 1849, p. 556.) I am unable to see clearly how statistics can decide the question; but I am convinced of one thing, and it is this—that whether we have one or ten per cent. of cases of tedious labour, our duty undoubtedly is to offer a remedy of some kind or other whereby these cases may be brought more speedily and safely to a termination.

Artificial dilatation of the os uteri is of great practical importance in those prolonged cases where it is proposed by writers to terminate the delivery by the forceps. When many hours have been ineffectually spent in accomplishing the first stage, nature seems totally unable to complete the process, and a train of unfavourable symptoms commences, so that we dare not hesitate to expedite the delivery by instrumental assistance. From the length of time consumed in perfecting, the full dilatation of the os, and the entrance of the head into the vaginal passage, the woman becomes exhausted, febrile symptoms show themselves, and we are reluctantly obliged to deliver by the forceps. I am alluding, of course, to cases where there are no impediments to the delivery. I would here suggest the propriety of gently dilating the os uteri, when the pains are genuine, though slow; nature will be assisted in her expulsive efforts, and there may be no necessity for either forceps or lever; the mother will be spared a considerable amount of suffering, and the child will not be dragged through the vaginal passage, and that unpleasant predicament may be avoided—namely, a still-born child. In lingering labour, Dr. Power proposes three methods of removing the increased opposition of the resisting parts; the third is—

"*By superadding an artificial impetus in aid of the propelling powers.*"

"The only way, without resorting to instrumental means, by which this intention can be answered, is by artificial dilatation of the os outeri or vaginal passage.....Cases will, however, be met with in which, although the uterine action is apparently powerful, and regularly exerted on the uterine orifice, without any evident metastatic connexion, little proportionate progress will be made, whilst, at the same time, the os uteri will evince so little sensibility as to allow the freest liberties from the point of the finger; in this case it appears evident that the want of progress is to be attributed to the want of yielding principle, admitting of a slow dilatation of the parts." (Power's Midwifery, p. 151.) And, after thirty years, he still holds the same opinions, and is an advocate for artificial dilatation. (The *Lancet*, vol. ii. pp. 33, 147, 1852.) The whole of his truly original work will amply repay perusal, and ought to be reprinted.

Again, when the first stage of labour has been quickly finished, we will frequently find that the second stage may be very slow; the head

may remain for hours in the vagina, with the vertex pressing against the perinæum, serious constitutional symptoms may appear, such as vomitting, retention of urine, vagina hot and tender, rigors, &c., and delivery must speedily take place either by forceps or crotchet. To avoid these unpleasant complications, I would propose artificial dilatation during the first stage, and if we are not called before these serious symptoms commence, we will often improve the expulsive throes by gently dilating the vagina and os externum by passing three fingers across the posterior portion of the vaginal walls backwards and forwards for a short time; a visible improvement will soon take place, and the pains become more expulsive. "There may be sufficient space, the os uteri and external parts well dilated, and yet the labour does not advance. In such a case the second stage cannot be very much prolonged without certain symptoms arising indicative of danger to the mother, and here we are able to relieve her without difficulty or risk, and to save the child, if it be alive at the time, by the timely use of the forceps." (Churchill's Operative Midwifery, p. 141, 1841.)

I also propose artificial dilatation of the os uteri in all those cases where it is recommended to exhibit the ergot of rye. I have so repeatedly been disappointed in my practice by the ergot that I seldom give it, and I am undecided as to its power as an expulsive. The most complete rules for its exhibition will be found in Dewees' Midwifery, paragraphs 1748 to 1756; and in accordance with his first and second rule I suggest gentle dilatation of the os, when the membranes are ruptured, the os uteri dilatable, the external parts disposed to yield, and where the natural powers are inefficient and not competent to the end. I do not stand alone as regards my doubts of the efficacy of the ergot. Power still doubts in 1852, though he has given it since 1823. Davis was slow to believe in it. Ramsbotham (senior) remained sceptical, and Lee never employs it, except in cases of accidental hæmorrhage or retained placenta.*

Suppose we do give it, and are disappointed as to its benefits, what are we to do? Nothing but use the forceps, if we expunge artificial dilatation from our list of adjuvants. Some authors seem to know only two things; first, give ergot; and, if that fail, then use the forceps, (Severn's Midwifery, 1831, page 68,) without bestowing much thought on the various collateral circumstances that should guide us in our decision. The injurious effects of ergot upon the child must not be overlooked; I have known it twice to cause death, and to the mother it is not always innocuous. The power and uninterrupted action of the uterus may produce extreme suffering to the patient, so that the same persons have refused to take it a second time. (Ingleby on Hæmorrhage, page 80.) Dr. Cusack stated it to have occasioned apoplectic symptoms, though this has been seldom observed since that statement was published. When injudiciously administered it is calculated to produce hour glass contraction and retention of the placen-

* Power in *The Lancet*, 1852, vol. ii. p. 147; Davis's Obstetric Medicine, second edition, p. 643; Ramsbotham's Practical Observations, 1821, part i. p. 241; Lee's Midwifery, Lecture xxii.

ta. (Chavasse, in the *Transactions* of the Provincial Medical and Surgical Association, 1836.) We possess no control over its action; it may be violent and excessive, or be totally useless; it may do much harm, or no good. Having once given it, we must only abide the result, without our being able to interfere. The following caution is worth recollection;—"Never give the ergot till the os uteri is well open and the external parts well dilated, for the uterus sometimes bursts from the violence of its own contractions, and we are obliged to give opium to moderate them." (Macintosh, from Blundell's Midwifery, 1846, page 465.)

Over artificial dilatation we possess a perfect control; we can make it gentle or more powerful, as it suits the patient's condition; often a slight attempt at dilatation will be sufficient to rouse the dormant energy, and if the trial, fairly made, be unsuccessful, which it certainly may in some cases, we have still left the other resources mentioned by authors—viz., the forceps, lever, or crotchet.

Artificial dilatation will, in the majority of cases, tend to prevent the retention of the placenta. The retention may arise from inertia, (probably the most common cause,) resulting from the woman being left unassisted for many hours; the vital powers become lowered; the uterus fails in the detachment and expulsion of the secundines. Ergot has been recommended to be given, but it is of much less utility than if the uterus contained the fœtus. Dr. Ingleby says, that if the placenta is retained either by spasm or morbid adhesion, the ergot will be decidedly improper. "After the child comes into the world, (in tedious labour,) you may expect an inertness of the uterus during the birth of the placenta." (Blundell, p. 463.) In my practice retention is very rare, and when it occurs, I endeavour to excite the uterine contractions by gently passing the finger round the relaxed and dilated os, whilst with the other hand I grasp the uterus externally thro' the abdominal walls, and gradually follow the uterus with my hand as it contracts downwards into the pelvis. Even when the placenta is detached and lies in the vagina, a portion of it is held by the contracting os uteri; if so, we may obtain its speedy expulsion by gently drawing the three fingers across the back part of the vagina (as mentioned before) a few times. Hour-glass contraction I have never seen but once.

In cases of accidental hæmorrhage, I know of no remedy more efficacious than artificial dilatation of the os uteri after the membranes are ruptured. We know that merely rupturing the membranes will not always arrest the flooding; but if the pelvis is well formed, and there is an absence of rigidity, artificial dilatation will be our safeguard. I have proved it to be so. I never trust to ergot; I seldom give it, because in dilatation I have a certain and powerful remedy. I have never been disappointed. The reader may with advantage study Smellie, vol. ii., Collection 18, No. 3, Case 2; and vol. iii., Collection 35, Case 10.

There is a certain unfavourable state of the os uteri seldom men-

tioned particularly by authors. It is called by Conquest œdema of the cervix, produced by pressure of the child's head obstructing the circulation, where "relief is to be afforded by cautiously elevating the fundus uteri, and by dilating and supporting the os uteri." (Outlines, 1827, p. 94.) Of this I have had no experience.

The difficulties attending lingering labour are attributed by many writers (and truly so) as frequently arising from resistance of the soft parts, and constriction of the vagina and os externum. Hence much opposition is given to any dilating means for accelerating labour under these peculiarities. With this I concur. On no consideration do I advise artificial dilatation where there would be the slightest impediment to the free exit of the child after the completion of the first stage. Likewise I do not advocate its employment in primiparous cases, although it may occasionally be tried and be of very good service; especially where there is no uterine or vaginal rigidity, and the pelvis sufficiently roomy. I never would think of putting dilatation forward as a substitute for venesection or tartar emetic. The latter especially I am a great advocate for where there is a certain amount of rigidity, and if judiciously given, it is an admirable medicine for producing relaxation; on this point I was considerably misunderstood in my former paper.

The following rules are suggested, as the basis of future inquiry, and may serve as a guide to those who have not made artificial dilatation their attentive study:—

1st. It may be safely and beneficially practised where the os uteri is lax and thin, the waters some time discharged, the head resting on the os, with the pains slow and irregular.

2nd. Where the os uteri is thick and yielding, pains lingering, the waters not discharged, and the first stage having existed several hours.

3rd. Where the waters have been discharged, the os considerably dilated, its edge thin, dilatable, and mucous, with no constitutional symptoms of irritability, and the labour-pains slow.

4th. May be tried beneficially in breech cases, and presentations of face to pubis, where the pelvis is capacious, and pains irregular and inefficient.

5th. Will be found useful in those uncomplicated cases where it has hitherto been proposed to terminate the delivery by the forceps.

6th. As a substitute for ergot of rye, and may be practised in all those cases in which the ergot has been recommended.

7th. Where judiciously practised in cases of lingering labour, depending on prolongation of either the first or second stage, it will tend to prevent retention of the placenta.

8th. Is of paramount importance in accidental and unavoidable hæmorrhage.

The length to which I have extended this paper, and the many calls upon my time, prevent me from doing more than again recommending

the subject of artificial dilatation to the attention of the profession. It must not be made a question of time, as Dr. Merriman ungenerously insinuates, with reference to parochial surgeons. Many parochial surgeons would hesitate to exchange their obstetric knowledge for that of several metropolitan physicians. If tedious labour is not to be interfered with, then how is it that rupturing the membranes, in many cases, is a recognised maxim in all midwifery works?

"It is always one of the most difficult points in obstetric practice to decide upon the exact time when we can no longer trust to nature, but must have recourse to artificial assistance, and it is often equally difficult to determine upon the precise means by which we are to assist. In considering the first question, the practitioner must be very much guided by his judgment in any individual case, as to how much suffering can be borne without constitutional or local mischief; no rule of time can be laid down, as one patient may be left unassisted for sixty hours with greater safety than another can for ten."—(Dublin Practice of Midwifery, 1834, page 121.)—*Ibid.*

Observations on Animal Heat.—By Robt. Cartwright, Esq. Surgeon.

I have just been reading over the chapters on Respiration and Animal Heat in Todd and Bowman, and in Kirkes' "Physiology." If I remember correctly, the statement in Carpenter is very similar. I must, however, confess that I cannot believe in the theory of animal heat as therein propounded and explained; and I shall feel greatly indebted if any of your contributors will have the kindness to remove my doubts on the subject.

According to this theory, "the oxygen absorbed by the blood in the lungs is carried to the capillaries; there heat is evolved by the formation of carbonic acid and water, which are then carried by the venous blood to the lungs, there exhaled, and a fresh supply of oxygen is taken in." So far plausible enough; but there are two grave objections to this theory;—

1. The temperature of arterial blood is about two degrees higher than venous.

2. The free and easy manner with which the venous blood is loaded with carbonic acid.

No explanation whatever is given by either author why or how the arterial blood becomes warmer than the venous. Most assuredly, according to ordinary chemical laws, the temperature of the blood, after passing through the cold air in the lungs, ought to be one or two degrees lower on the left side of the heart than on the right; but the reverse is the fact.

I have heard of a gentleman who could drink a certain quantity of wine without being affected by it, but if he took one glass more it made him immediately tipsy. Carbonic acid is, even in very small

quantities, a dangerous poison; and it is too good a joke to suppose, as in the case of the *bonvivant* just mentioned, that the deleterious effects of carbonic acid depend on the system being already saturated with it. Todd states that sixteen cubic feet of carbonic acid are expired in twenty-four hours, or about twenty-three cubic inches per minute. For my part, I don't believe there is a single atom of carbonic acid in healthy blood, and that is very evident from Kirkes' own statement:—

"But when any number of elements are combined in an organic compound, they appear all held together as with one bond, as if each of them were united with equal force to all the others."—p. 5.

And in the analysis of this substance (carbonate of ammonia) the first pair of elements may be separated together in the form of carbonic acid, the second pair remaining as ammonia. But in stating the composition of an organic body, these four elements would be all placed within one bond or bracket; and in the analysis of such a compound the elements part asunder, and recombine in compounds, which vary according to the circumstances in which the change takes place, and of which compounds there may be no reason to believe that *any previously existed in the substance analyzed.*—p. 6.

The existence of carbonic acid in both arterial and venous blood has been proved by several experimenters, who have obtained *appreciable* quantities of it by exposing the blood to the vacuum of the air-pump, or more certainly by agitating it with atmospheric air, oxygen, or other gases, such as hydrogen or nitrogen. By the latter process carbonic acid may always be extracted from venous blood. Some, indeed, *have failed* to procure any gas from blood by means of the air-pump; but this may be explained by the fact observed by Magnus, that carbonic acid is not given out until the air in which the blood is placed is so rarified that it supports only one inch of mercury. Heat also commonly *fails* to evolve carbonic acid from blood.—p. 170.

Dr. John Davy says that "carbonic acid *is not evolved* from coagulating blood."—p. 47.

What an extraordinary method of proving a fact! "By agitation with atmospheric air carbonic acid may always be EXTRACTED from venous blood." No doubt about it; the only wonder would be if it were otherwise. The excess of carbon in the venous blood unites with the oxygen, &c.; but the phrase should run thus: "by agitating venous blood with atmospheric air, carbonic acid may always be OBTAINED." Now let it be distinctly remembered that this carbonic acid is not part and parcel of "that organic compound, the blood, whose elements are held so loosely together, so ready to decompose and fall asunder;" but it is a foreign, inorganic, and chemical compound, a deadly poison, jogging on with the venous blood most harmlessly and lovingly, like the Indian juggler with his poisonous snakes, or the happy family in Trafalgar-square, from the capillaries to the lungs, and there not less than twenty-three cubic inches are evolved per minute. If this strange theory be true, it is not at all surprising that

learned professors, physiologists, and hospital physicians, British, French, and German, having their brains surcharged with carbonic acid, should miscomprehend the spasmodic contortions of a dead donkey's heart made deadly-lively by artificial respiration.

It is objected against the theory of heat being produced in the lungs that the temperature of the blood in the left side of the heart ought to be much more than two degrees higher than that in the right; but unless such objections are supported by better evidences than the so-called proofs of carbonic acid being present in large quantities in the blood, I shall consider the following theory more satisfactory and far preferable to the other: "Carbon and hydrogen permeate the membranous walls of the air-cells, and combine with the oxygen of the atmospheric air; the heat is carried off by the arterial blood as rapidly as it is evolved. The secretion or separation of its carbon and hydrogen from the blood is essentially a vital act, and the combination with the oxygen in the air-cells is purely chemical; and that chemical combination takes place on an external surface, the carbon, hydrogen, and oxygen forming no part of the living body, though in the centre of it." The increased or diminished temperature of the various parts of the body depends on the increased or diminished supply of the arterial blood, as in blushing; in paralyzed limbs, where the circulation is enfeebled, and in muscular action there is not only increased temperature, but also swelling of the muscle, as may be easily proved by using the dumb-bells for a few minutes, and measuring the arm round the biceps.

In my letter in *The Lancet* last December, I stated that the radial pulse was synchronous with the impulse of the heart in a case of stricture of the mitral valve, the dilatation of the ventricle being retarded by that cause. I rejoice greatly to find another case supporting the diastolic theory in no less a work than the *Edinburgh Monthly Journal of Medical Science* for May, 1853. Dr. Peacock, of St. Thomas's, London, states, (page 397,)—"The pulse at the wrist follows the impulse of the heart by a very distinct interval,"—evidently something more than usual,—and he afterwards adds, "that the orifice of the mitral valve was increased in size, the mitral aperture being three inches and six lines in circumference." It thus appears that the diastolic theory satisfactorily explains two important variations of the pulse, which are perfectly inexplicable according to the systolic theory. *Magna est veritas et prevalebit.—Lancet, July* 16.

A few remarks upon the organic muscles of the Urethra.—By Jabez Hogg, Esq., M.R.C.S., &c.

Finding that difficulty is occasionally experienced by anatomists in dissecting out the organic muscular fibre, and having lately received a request to furnish the plan adopted by my friend, Mr. Hancock, and myself, in our investigations made for the purpose of showing the distribution of this very interesting structure, you will do me the favour to find a place for the following remarks upon the subject:—

Having slit up a fresh urethra, throw down the flaps, and put them upon the stretch by pinning down to a board. By carefully dissecting off the first or mucous coat, we come to a second or firm substratum of elastic cellular tissue; having removed this, we next have a grayish layer, which, with the unassisted eye, may be seen to be of a different structure to the former: this is the muscular coat. Take a very small piece, and *tease* it out with fine needles in a drop of water, previously placed on a glass slide; ten or fifteen minutes will be required to break this up for examination under a power of not less than 250 diameters; to develop the nuclei and render them distinct, a drop of very dilute acetic acid will be a necessary addition. The parts in which the muscular fibre will be more readily found are the prostate and the glans penis; in other portions of the urethra they degenerate, as in the other tissues, with age from defective nutrition; assuming at times the form of minute granules, which evidently consist of oily or fatty matter from their solubility in ether, and yielding to analysis a large quantity of fatty matters; at other times we have the wasting peculiar to a cessation of some of the functional uses of the part, or a conversion of it into the fibro-cellular tissues. This is indicated by an examination of the urethras of young persons, even as early as fœtal life; the muscular fibre is the more readily traced and seen throughout the whole extent, and the nuclei will be observed to be of a much larger size than in after life. Beneath and distributed amongst the muscular fibre will be seen filaments of nervous matter, which appear freely supplied to the whole organ, commencing at the glans penis, with a closely-set network of absorbent vessels.—*Ibid.*

Adipose Deposit in the Muscular Fibrillæ of the Heart; Inefficient Action of the Organ; Anasarca and Ascites; Death; Autopsy. Under the care of Dr. Todd.

The morbid change known under the name of fatty degeneration is one which deserves great attention from the pathologist, and which highly interests the practical man. The latter has often the grief to notice that organs of the highest importance in the economy are gradually being spoiled, and must sooner or later be rendered totally incapacitated from performing their functions, by the muscular atrophy resulting from the deposition of fat. It is easy to understand fatty degeneration, or a kind of retrograde transformation, in tissues condemned to inaction after having been in full use for a considerable period; but that the heart—that indefatigable propeller of the vital fluid—should suffer such a change is not so easily reconcilable with our ordinary notions. But the facts are but too numerous and undeniable, and it is clearly shown that the heart is as liable as the liver and other tissues to have the integrity of its textures destroyed by a deposit of oil globules in the muscular fibrillæ. It was at one time supposed that the latter actually disappeared and were replaced by fat, but it is now clearly ascertained that the atrophy of the fibrillæ is principally caused by the compression of the globules.

Imperfection in the action of the heart is so often connected with valvular disease, that the idea of pathological changes in the valves immediately springs up when abnormal cardiac action and sounds are heard; but we must often look to the muscular tissue alone for traces of disease, and for the cause of the inefficiency of the organ; even simple muscular weakness (angina pectoris) being often the cause of most distressing symptoms. In the present case, noted by Mr. Colston, one of Dr. Todd's clinical clerks, the inspection has been so carefully made, and the nature of the morbid changes so thoroughly made out by means of the microscope, that we beg to place the account before our readers:—

Thomas P——, a groom, aged thirty years, was admitted May 29, 1853, under the care of Dr. Todd. The patient said that he had led a very temperate life, and had always enjoyed good health. His father is still alive, but both his mother and one brother died of decline twelve years before the period of his admission; there are, however, two brothers and one sister now living, and enjoying tolerable health.

The man had suffered from shortness of breath for many years past, and had had inflammation of the lungs about five years since, after which the dyspnœa became worse, especially on going up stairs. Actual palpitation of the heart began only two months before admission; and the latter symptom, as well as the dyspnœa, increased so much a fortnight before the patient was received into this hospital, that he became unable to ascend a staircase, and was usually carried up. Cough had existed more or less for the last twenty years, and was principally troublesome in the morning. The legs had begun to swell about four months before admission, and ascites was observed two months afterwards. The patient had been under medical care both in public and private practice; and as the dropsy and shortness of breath increased, he applied to this hospital.

On admission, the countenance was found very livid, and was stated to have been so for the last two years; the respiration impeded, and the heart's action very laborious. The pulse was 112, and the respiration 24. The cough was reported to be very severe all day, especially in the morning; and the expectoration profuse. The physical signs are described as follows:—

The movements of the chest are symmetrical; dulness on percussion is found over a space extending from the right side of the sternum to beneath the left nipple, and half an inch beyond it. Considerable wheezing is heard in both lungs; the expiration is prolonged, and the heart's action is to be felt faintly just under the left nipple, but it is most conspicuous at the scrobiculus cordis. There is a systolic bellows-sound just above the ensiform cartilage; very distinct when the patient holds his breath. No bruit de souffle is noticed along the aorta or below the nipple, but it is distinctly heard by the scrobiculus cordis, a little to the left of the last bone of the sternum. The veins of the neck are considerably dilated, and pulsations are communicated to great many of them. The patient passes about two pints of urine

daily, of the specific gravity of 1017; and he states that he never strained himself.

Dr. Todd ordered him to be bled to six ounces, and prescribed pills of calomel, squills, and digitalis, one grain of each, to be taken thrice a day; as well as half a drachm of compound jalap powder, every other morning.

For the first few days the cough became worse and the dropsy increased, the scrotum being particularly large. The latter was punctured on the fifth day; very little fluid came away, and the patient complained of much debility. On the ninth day he fell into a drowsy state, and died on the 8th of June, ten days after admission.

The body was examined fifty-six hours after death. It presented a remarkable degree of lividity, though well formed and well nourished; the blue tinge was, however, most marked about the face and neck, and ears, and the scrotum. The small superficial veins of the chest were highly congested, the integument and areolar tissue of the lower extremities were in a peculiarly dense, somewhat œdematous state; and in several places, particularly on the inner aspect of the thigh, were bullæ of various sizes. Upon opening the chest, the pericardium was seen to be unusually large; and on slitting up the sac, its cavity was found to contain a small quantity of a dark-yellow serous fluid, and a heart of enormous size; this hypertrophy appearing to depend almost solely on enlargement of the right side, which had so increased in bulk as to form, in great part, the apex of the organ. The left side, however, had also outgrown its normal dimensions. On opening the right ventricle, its walls, and especially the carneæ columnæ, were found considerably hypertrophied; the enlargement was, however, more of consistence than bulk, the muscular substance having a peculiar tough, leathery feel. The walls of the right auricle, with its musculi pectinati, were also much enlarged. The tricuspid orifice was so spacious as readily to admit four fingers; but the valves themselves presented no evidence of diseased structure, save that along their attached borders they were somewhat thickened and opaque.

The left ventricle appeared healthy, its walls were much softer to the feel than those of the right ventricle, and the mitral valve exhibited indications of softening and opacity similar to that which had been observed on the right side. The left auricle, the pulmonary and aortic valves, and the great bloodvessels, appeared to be healthy, though the aorta seemed to be very small in proportion to the great size of the heart. The latter measured fifteen inches around its base, and it weighed, when deprived of its blood, twenty-one and a half ounces. The muscular fibres of the left ventricle, when examined under the microscope, presented a peculiar granular appearance, and the transverse striæ were not so sharply defined as in the healthy condition; but it is very difficult to say whether this was the result of disease or a post-mortem change. A good deal of free oil was scattered over the field, but no fibre in a state of marked fatty degeneration could be distinguished.

In the right ventricle, on the other hand, many of the fibrillæ exhibited oil globules, which seemed to take the place of the sarcous elements, so as to give the appearance of a string of oil beads; while in other instances the fibres presented a granular appearance, without any distinct oil globules. Upon the addition of acetic acid, minute globules of oil became very distinct in almost every fibre, and by pressing the specimen between the glasses, the whole field became covered with oil globules, mostly minute, the light centre with the dark edge being exceeding well defined in almost every instance.

The liver was of a normal size, but appeared to be in an incipient stage of cirrhosis, being somewhat tough and granular on section. Most of its cells exhibited under the microscope more oil than they usually contain in the healthly state.

The lungs were enormously congested, and poured forth, when cut into, much bloody serum. Under the microscope no change of structure could be detected in these organs, there being no hypertrophy nor apparently other morbid state of the minute arteries, which were carefully examined.

The kidneys were very large, each weighing rather more than seven ounces, and greatly congested; the lobular markings on the surface were quite distinct, and the normal relations between the cortical and medullary substances appeared to exist, on a section being made, though each was considerably larger than in the healthy state. When examined microscopically, the tubes, with their epithelial lining, exhibited the healthy characters, but the Malpighian bodies were greatly enlarged, many being twice the size they are in the healthy kidney; and their contained loops of capillaries being filled with blood, were very distinct and prominent, so as to give a rugged, bulging appearance to the Malpighian capsule. The arteries of the kidneys seemed to be healthy, neither their longitudinal nor circular coat presenting any evidence of hypertrophy.

It has not escaped our readers that the fatty degeneration was almost as much advanced in the liver as in the heart, the intimate connexion between the two organs being as manifest in health as in disease.—*Ibid.*

On Small-Pox and Vaccination: Analytical Examination of all the Cases admitted, During Sixteen Years, at the Small-Pox and Viccination Hospital, London; with a View to Illustrate the Pathology of Small-Pox, and the Protective Influence of Vaccination, in Degrees varying according as the Vaccination has been Perfectly or Imperfectly Performed.—By J. F. Marson, Resident-Surgeon to the Small Pox and Vaccination Hospital, London.

During the period comprised within this analysis small-pox had been epidemic four times—in 1838, 1844, 1848, 1851; and rather more than half of the patients admitted into the hospital had been previously vaccinated. Much anxiety about the degree of security af-

forded by vaccination had begun to be felt, and the author thought the profession would be interested; and much useful information perhaps might be elicited by classifying and arranging the patients admitted during the above-named period. The analysis referred principally to the following points:—

I. Natural small-pox.
II. Small-pox after small-pox.
  a. After natural small-pox.
  b. After inoculation.
III. Small-pox after vaccination.
  a. Number of cicatrices.
  b. Character of cicatrices.
  c. Vaccinated, but without cicatrices.
IV. Febrile eruptive diseases mistaken for small-pox.

A remarkable difference was observed between the vaccinated and unvaccinated patients, and also between the vaccinated cases themselves,—some patients having the small-pox in a mild form, wholly devoid of danger, whilst others had it in great severity, scarcely if at all lessened by the previous vaccination. Under these circumstances the author thought that the causes of this remarkable difference might be sought for among the antecedents in respect to the vaccination of each individual admitted, with a view to explain the extreme mildness of some cases—the danger, unmitigated course, and even death of others. Small-pox in the unprotected remains to this day as virulent as it ever was. Vaccination, when performed in infancy, affords almost complete security against the fatality of small-pox up to the period of puberty; and the general experience of the Small-Pox Hospital shows that small-pox did not usually occur after vaccination until several years had elapsed. The most trust-worthy evidence of the perfection of vaccinatton was to be obtained from the cicatrices, and this evidence he would be able to show was a very good guide to the general amount of protection conferred by vaccination.

The analytical series consisted of six tables. The first table showed the number of patients admitted at the hospital in each year, distinguishing males from females, whether vaccinated or otherwise, and gave the outline of the disease under which each was suffering; it included 185 cases of febrile diseases, principally eruptive but not variolous, and it furnished the result of the whole, with the rate per cent. of the mortality. The second table gave an analysis of all the cases of small-pox, 5797, classed under nine different headings, the form of the disease in each case, and the result, with the rate per cent. of mortality under each division. He there gave the ages of the unprotected patients, and the rate per cent. of mortality calculated at different periods of life, for every five years up to thirty, and even ten years afterwards. The fourth table exhibited, separately, the leading particulars of 3094 cases of small-pox after vaccination, showing from a careful examination of each patient, the number and character of the

vaccine cicatrices, the form of the variolous disease and the result, with the rate per cent. of the mortality from small-pox after deducting the cases of superadded disease. It also showed the rate of mortality from small-pox in patients having one vaccine cicatrix, particularizing whether good or indifferent, and the average. The fifth table showed, in quinquennial periods, the ages of the vaccinated patients when attacked by small-pox, when they were vaccinated, and the rate of mortality. The sixth table stated, in periods of five years, the ages of the patients at the time they were vaccinated, who had subsequently been admitted with small-pox into the Small-pox Hospital. Observations on the results accompanied each table ; and in relation to Table IV., it appeared that 3094 patients with small-pox, reported themselves to have been vaccinated at some period of their lives. 1357 had one vaccine cicatrix ; and of these four and a quarter per cent. died with a good cicatrix, and twelve per cent. with an indifferent cicatrix : mean, seven and a half per cent. 888 had two cicatrices ; two and a half per cent. died with two cicatrices, seven and a quarter with indifferent cicatrices ; mean mortality, four per cent. and a fraction. 274 patients had three cicatrices : average mortality, one and three-quarters. 268 patients had four cicatrices ; and there died with good cicatrices under one per cent. ; with indifferent cicatrices, none, the average being only three-fourths of one per cent. The author described a good vaccine cicatrix as distinct, foveated, dotted or indented, in some instances radiated, and having a well, or tolerably well, defined edge. An indifferent cicatrix as indistinct, smooth, without indentation, and with an irregular and well-defined edge. The author's opportunities of examining, with regard to previous vaccination, the foreigners admitted with small-pox at the hospital, and comparing them with each other, and with the same class of persons in this country, had led him to the conclusion, that vaccination was performed in the best manner generally by the Danes, Swedes, Norwegians, and Germans, judging them by the standard shown in Table IV., to afford the most efficient security. Then came the Italians ; and from the few he had seen, the Spaniards ; then the Scotch ; then the Irish, and, lastly, the English and French. He was most anxious to draw the attention of his professional brethren to the above fact. There must exist some grave and lamentable evils (more especially affecting the humbler classes) connected with the circumstances under which vaccination in country districts was performed. The details recorded in this paper should urge our provincial brethren, whose position and ability gave them influence, to lend their aid to trace the evil to its root ; for there could be no justifiable reason why the rural inhabitants of England and Wales should be far less well vaccinated than were the rural inhabitants of Denmark, Sweden, and Prussia. The mortality, severe as it was between the indifferently and the well vaccinated, was not the only evil result to be regretted of bad vaccination. Proprotionate to the mortality was the severity of the disease, and to those who escaped death there was damaged health, disfigurement for life perhaps, and the discredit brought on vaccination which was in no degree due to it

intrinsically, but was owing solely to the want of proper knowledge of the subject, and of the necessary care with which the operation should be performed. Great judgment and caution should be exercised in the selection of vaccine lymph, for in this lay one of the principal causes of failure in vaccination. Lymph for use was in its best state on the seventh day of the progress of vesicle, the day week from the vaccination; and the author described the character of the vesicle and the indications of the stage when it was most favourable for the collection of the lymph, and some very valuable and instructive observations followed on the mode of conveying lymph, the mode of vaccinating, the mode of preserving lymph, and on re-vaccination.

The author's conclusions from the foregoing facts and statements were—

1st. That natural small-pox destroysd about one-third of all whom it attached.

2nd. That small-pox after small-pox was of comparatively rare occurrence; that a second attack of natural small-pox was rare, but not often fatal, and that protection seemed to be the law. That after inoculated small-pox an attack of small-pox had more frequently led to fatal results; but there is reason to presume that the virus used for inoculation, like a great deal of the lymph used at the present day for vaccination, was often taken at too advanced a period of the disease, and thus did not afford the full measure of protection it was capable of affording if taken at a proper time.

3rd. That vaccination performed in infancy afforded almost complete protection against the fatality of small-pox to the period of puberty; that a variety of circumstances conspired to make it almost impossible to ascertain exactly in what proportion to the vaccinated cases of small-pox subsequently occurred, or might occur, if all persons lived to an advanced age.

4th. That as a matter of safety it would be well for all persons who were vaccinated in infancy to be re-vaccinated at puberty; this measure being more especially requisite for those who were either indifferently or doubtfully vaccinated in infancy, and still more necessary for those who, though vaccinated, had no cicatrix remaining. Finally, as a matter of precaution, it would be desirable that all persons should be re-vaccinated on small-pox existing in the house where they were residing—a precaution, however, that will cease to be necessary to advise when all persons have the benefit of proper and efficient vaccination.

Dr. Copland remarked that it would be interesting if any member could give an account of the causes and effects of the small-pox epidemic in Jamaica, where it had been most destructive.

Mr. Streeter would throw out one suggestion, and that was, the necessity of attending to the health of the skin before vaccination was performed. He believed that the exhausted state of the skin in tropical climates was one cause of the imperfect vaccination which ob-

tained in them. With respect to the unsatisfactory state of vaccination in the country districts, he might mention that, about thirty years ago, in the practice with which he was connected, out of more than a hundred children who had been vaccinated, not one half returned to show the arm and the effects of the operation. He might observe here, that he had only seen one fatal case of small-pox after vaccination, and this was on the fifth day. He alluded to one source of danger in cases of small-pox—namely, a profuse flow of the catamenia which occasionally occurred in the secondary fever.

Dr. Webster considered the paper just read as of great value, whether in respect of the numerous facts it contained or the deductions enunciated by the author. Besides which the various tables compiled would enable others further to investigate the question, and so disabuse the public regarding some fallacies recently disseminated. He (Dr. Webster) entirely concurred with the opinion stated, respecting the great fatality of small-pox among young people, compared with those in more advanced life. For instance, during 1847, when upwards of 4200 persons died by variola throughout England and Wales, more than three-fourths were under five years of age,—the sexes being equally divided, while very few had passed their forty-fifth year. Again, the fact mentioned by Mr. Marson, that death very rarely occurred in cases where the individual had been properly vaccinated in three or four places at the same time, was likewise most important, and showed if the system was once properly imbued with true vaccine virus, little danger of subsequent small-pox need be apprehended. In his (Dr. Webster's) opinion, many of the deaths reported from variola, after cow-pox, occurred where the party never had been correctly vaccinated, especially throughout rural districts and country towns; in which localities numbers even remain altogether unprotected, owing to the prejudices frequently prevailing in ignorant minds against vaccination, who obstinately object, it is reported, to the operation, "as an impious attempt to arrest the will of the Almighty." The Society's time being very limited, as announced from the chair, prevented any allusion to several points adverted to by the author; nevertheless, before sitting down, Dr. Webster remarked, that the statements now brought forward more than ever confirmed the protective efficacy of cow-pox, when vaccination was carefully and judiciously performed.

Dr. Chowne, having been a frequent visitor at the Small-pox Hospital, could corroborate many of the statements made in the paper. He thought that the fact mentioned in the paper, of the number of persons affected with small-pox after vaccination in the country was most important. It could not go forth with too much energy and force. The failure of vaccination in country districts was most lamentable, but it was not the fault of the practitioners—it was the fault of the Boards of Guardians, of the Government, by whom no efficient arrangements for vaccination were made, and consequently thousands lost their lives.

Dr. Copland having inquired if the author of the paper had any remarks to offer—

Mr. Marson said that of course much of his paper being tabular could not be heard before the Society. He wished, however, just briefly to allude to Table IV., in which the number of cicatrices, and whether they were good or bad cicatrices was dwelt upon. The difference observed was remarkable. Thus, amongst the persons who had only been vaccinated in one place, and the cacatrix was imperfect, twenty per cent. took the small-pox, whereas, when there were four cicatrices, and these were good, the numbar who took small-pox after vaccination was only one per cent. The medical public had relied upon the circumstance of Jenner having at one time vaccinated in only one place, but he (Mr, Marson) knew that Jenner did not confine himself to one, for he had seen a patient whom Jenner had vaccinated in 1806, and the person had four cicatrices.—*Ibid.*

Syphilitic Ulceration of the Fauces and Larynx; Impending Suffocation; Tracheotomy; Re-admission of the Patient after having worn the Canula for Six Years.

Our attenten was lately directed to a most interesting case, illustrating the advantages and ulterior effects of tracheotomy, and the ease with which a canula can be worn for a great number of years.

Sarah C——, twenty-eight years of age, and unmarried, whose habits of life have been very irregular, was admitted June 16, 1847. The patient had been in the hospital one year before admission, when she suffered from severe secondary ulceration of the uvula and soft palate. She remained in the hospital for a week at that period, the treatment adopted being quinine, and the application of nitrate of silver to the ulcers of the throat.

When admitted, on July 16, 1847, as stated above, her person and symptoms were described as follows:—The patient is a sallow, ill-conditioned looking woman, small, and uncleanly, with a countenance expressive of great anxiety. Since she left the hospital (a twelve-month before this description was written) she has never been well, her mode of life has been very irregular, and she has frequently caught cold. The edge of what remains of the soft palate is swollen and ulcerated, as is also the left tonsil; the throat generally is inflamed, and the epiglottis very irregular in its outline. The breathing is stridulous, 13 per minute; pulse 84, thready; skin cool and moist; tongue pale and white. Mr. Hilton believes the disease to be situtated in the arytenoid cartilages. Donovan's solution, in decoction of bark, was prescribed, with morphia at night, and a blister over the larynx.

For the next five days the breathing became more and more difficult, though the patient sedulously used the vapour of hot water to the throat. The peril soon became so imminent that Mr. Hilton performed tracheotomy five days after admission.

An incision, an inch in length, was made as near the middle line as possible, and a conical curved trocar and canula thrust into the trachea

about one inch and a half above the sternum. The trocar was then withdrawn, and, to prevent the canula from slipping, it was tied round the neck by a tape. The operation was rendered somewhat difficult by the head of the patient being forcibly thrown forwards on the chest.

Immediately after the opening of the trachea the dyspnœa was extreme, but in about an hour the woman became tranquil, and slept comfortably at intervals during the night. She was ordered wine and beef-tea. For five days after the operation the woman suffered considerable pain in the head and in the wound; several times she was almost choked by the cough and accumulation of mucus in the tube; but on the fifth day the pain abated considerably, and the respiration became easier. She experienced great relief by inhaling the steam from an infusion of conium.

The patient continued taking about six ounces of wine per diem, and on the eleventh day after the operation, the report states that she slept well, the respirations were only twenty in a minute, and the pulse 104, soft. Mr. Hilton then ordered quinine, and good diet, with a continuance of the wine.

On July 11th, tweuty-one days after tracheotomy, she began walking about the ward without fatigue, and was pronounced convalescent. Her progress from this time was most satisfactory; she gradually lost the swallow unhealthy hue of skin, and gained flesh rapidly; the wound contracted firmly round the canula, the ltater requiring, however, occasional cleansing. No topical applications were used to the palate and larynx, but the ulcerations did not extend; they gradually assumed a healthier appearance, and about three weeks after the operation the throat was quite well.

With Mr. Hilton it was a question as to the propriety of removing the original canula, and substituting a broad one; but on considering the subject, as there was a probability of much inconvenience resulting from the change, it was decided that the canula should remain untouched. By the patient's own desire she was discharged on August 10th, 1847, seven weeks after the operation, and was earnestly enjoined to be careful of exposure to cold, and to wear constantly two or more folds of muslin over the mouth of the canula.

This patient stayed away for about six years, when she was re-admitted, May 12th, 1853, for a slight bronchial affection, much emaciated, and suffering more from want than from actual disease. She was still wearing her canula, and Mr. Stevens, who had been attending to her for a long time at her residence, was kind enough to put the following memoranda at our disposal:—

"Since the period that this patient left the hospital in 1847 to the present time I have constantly seen her. She has been living in Spitalfields, and has had three children since the operation was performed. Her husband has frequently during these years been out of work for days, sometimes for weeks, together, so that her living, at the best of times barely sufficient, has very often been totally inadequate, and she has consequently endured much privation. Her different places of

residence in Spitalfields have all been characterized by darkness, dirt, and utter cheerlessness ; she has been exposed continuously to all the vicissitudes of the weather, (to some extent perhaps unavoidably,) her clothing been inappropriate and insufficient, and she has moreover entirely disregarded all our entreaties and injunctions relattve to the tube being lightly covered with a fold or two of muslin ; frequent and sometimes rather severe attacks of bronchitis have been the result of this imprudence and carelessness.

" The tube has required removal and cleansing four or five times in the year, of course oftener when there has been bronchial disturbance present ; the secretion has at all times passed freely and easily *through the canula* and never through the mouth. Carefully repeated trials have failed to detect the smallest passage of air through the larynx and mouth till about four months ago, when a very slight stream was found to pass, so small that even now (June, 1853) it is only sufficient *to bend* the flame of a candle. There has been no appreciable voice, and it requires the greatest possible attention in observing the movements of the lips to be enabled to recognise the enunciation of a word. Further to demonstrate the impervious condition of the larynx, I may mention that when the finger has been applied over the end of the canula, or, the canula being absent, over the external orifice, complete incapability of breathing has been the result.

" Generally speaking, I have had no difficulty in removing the canula, and substituting another, during the cleansing of the original one. On the last occasion, however, Feb. 23, 1853, there was great difficulty in the re-introduction of the tube, owing to a very relaxed state of the tracheal mucous membrane, and towards the close of this nearly fatal operation, I was compelled to use considerable force to overcome the sphincter-like contraction of the external orifice. On three or four occasions small abscesses have formed in front, but independent, of the trachea, and these have occurred more often *below* than above the canula."

Mr. Hilton treated this patient upon her re-admission on the tonic and restorative plan, and she left the hospital in a month, greatly improved, and in what might be considered for her good health. It is thus clear that a canula can be worn for years under the most unfavourable circumstances, and it is also evident that this patient could not have lived without the performance of the operation, seeing that the larynx is now almost completely closed. This case might also allay the fears of those who advocate tracheotomy in epilepsy, as it is proved that a canula can be worn without danger for a considerable length of time.—*Ibid.*

Lectures on the Diseases of women.—By W. Tyler Smith, M.D.

The Pathology and Treatment of Leucorrhœa, based on the Microscopical Anatomy of the Os and Cervix Uteri: Relations of Secondary Syphilis to Leucorrhœa: Syphilitic Leucorrhœa; the Anatomy and Pathology of the Ovula Nabothi.

I am persuaded that far too little importance has hitherto been given to the connexion between Constitutional Syphilis, and obstinate Leucorrhœa with disease of the os and cervix uteri. It is satisfatorily proved that the genuine chancre is rare upon the os uteri, but that in secondary and tertiary syphillis leucorrhœa is very common. Dr. Henry Bennet states that M. Gibert examined five hundred syphilitic women at the Lourcine Venereal Hospital, and out of this number one hundred and forty presented granular erosion of the cervix uteri, which was generally accompanied by cervical leucorrhœa. From the form and appearance of the granular surface, with the frequent co-existence with other syphilitic symptoms, M. Gibert was led to consider this condition of the cervix uteri, "as a distinct species of syphilitic ulceration, which he appears to think in many cases succeeds to chancres." Dr. Bennet himself examined a large number of patients affected with cutaneous syphilis at the Hospital St. Louis, and found a still greater proportion of cases in which the cervix uteri was in a morbid condition. He, however, arrives at a very different opinion of their nature from that held by M. Gibert. Dr. Bennet says:—

"Admitting that these ulcerations are not primary syphilitic sores, is it equally true that they are merely inflammatory? May they not be secondary? That some *may* be so I think is probable; but I do not believe it probable that more than a very small number can possibly have such an origin. On the one hand, affections of the mucous membrane are not so very common, (as secondary symptoms of syphilis,) and on the other, a secondary ulceration of a mucous surface presents peculiar characters, which are not those usually observed. I have, however, seen ulcerations of the cervix, in syphilitic patients, present the gray pseudo-membranous covering which is seen in secondary syphilitic ulceration of mucous membrane, and I am quite willing to admit that they may really have been instances of this form of disease. If the ulcerations which we are examining are not syphilitic, what is their nature? To this question I answer, that they are nearly all, in my opinion, inflammatory."

My own observations lead me to differ from the conclusions of M. Gibert and Dr. Bennet. I do not think with M. Gibert that the morbid conditions of the os uteri found in constitutional syphilis are often the sequelæ of chancres in the same situation, nor with Dr. Bennet, that these conditions are generally the results of simple inflammation. It appears to me that in almost all cases in which leucorrhœa and disease of the os and cervix uteri are present in women suffering from constitutional syphilis, the uterine symptoms are a genuine manifestation of the constitutional disease. The argument derived from the in-

frequency of secondary syphilitic ulceration upon mucous surfaces, is invalid, since the covering of the vaginal portion of the cervix uteri is more nearly allied to skin than to mucous membrane; and secondary syphilitic disorder is, we know, very frequently met with at the points at which skin and mucous membrane meet. Dr. Bennet remarks, as favouring his views, that "these ulcerations generally gave way easily to the usual treatment—viz., slight cauterization, injections &c.;" but, he adds, that "in all the cases which have come under my notice, the venereal symptoms were treated at the same time as the uterine." Of course no conclusions could be drawn respecting cases of this kind. I have on the other hand, seen many cases in which, in patients suffering from disease of the os and cervix uteri, with secondary syphilis, the disease obstinately refused to give way until the disease was treated as syphilitic. In this country it is not very uncommon to see cases in which men who have had syphilis a few years before marriage convey secondary syphilis to their wives through the medium of the ovum. There is in such cases a great disinclination to attribute any disorder to a syphilitic taint. In instances of this kind, I have seen syphilitic leucorrhœa resist all the usual remedies, or, if cured, return again after the disuse of treatment. In some of these cases, the leucorrhœal symptoms have been almost the only signs of syphilitic disease in the mother, though the nature of the disorder was generally made evident by the presence of syphilitic eruptions upon the children to whom such women have given birth. Sometimes, however, the children are still-born, and do not present any signs of syphilitic disease, or abortions take place in the early months. The following cases may be quoted as illustrations;—

Case 1—Mrs. ——, aged twenty-five, married, consulted me in 1852 for leucorrhœa and menorrhagia. She had aborted several times, and was in very bad health. The digestive organs were much deranged. She complained of palpitation and violent headache, apparently the results of loss of blood. Pain in the lower part of the back quite disabled her from walking, and she suffered from constant bearing-down and uneasiness in the regions of the uterus and bladder. She referred her maladies entirely to three abortions, and to menorrhagia following upon them. For three years she had menstruated profusely and irregularly, and with considerable pain, and at each abortion she had lost a large quantity of blood. The leucorrhœa was constant and profuse. On examining digitally, the uterus was found prolapsed almost to the ostium vaginæ. On making an examination with the speculum, I found the whole of the os uteri and the upper part of the vagina excoriated and devoid of epithelium; the entire cervix was enlarged, and bled upon the slightest pressure. An eczematous eruption was visible upon the os uteri, and the orifice was deeply fissured. Pus was secreted in considerable abundance by the abraded surfaces, and large quantities of yellow viscid mucus poured from the cervical canal. This patient remained in London about three months, and under the administration of alteratives and tonics, with local treatment, the uterus returned to a tolerably healthy condition. The leucorrhœa ceased; she menstru-

ated naturally, and became comparatively strong. During this time I had little if any suspicion of a syphilitic taint. There were no symptoms, in fact, which could not be explained by the abortions and their results, occurring in a person of not very robust constitution. The abortions themselves appeared to have been caused by the diseased condition of the os and cervix uteri. She now went into the country and became pregnant for the fourth time. She lost blood occasionally during this pregnancy, and aborted at the fifth month. When I was made aware of this, I begged that, if she aborted, the placenta might be sent to me. She did abort, but I did not see the placenta, as the gentleman in attendance did not consider it necessary. There appeared to be no signs of placental disease, but after this abortion all her old symptoms returned, and she again applied to me. She now complained of acne of the face and neck, sore throat, and pains in the frontal bone; circumstances which led me to inquire into the case more closely, with a view to ascertain the existence or non-existence of a syphilitic taint. All the parties concerned showed the utmost candour, and, with the aid of the medical attendant, I obtained the following syphilitic history:—

The husband, in 1842, nearly eleven years ago, had a chancre, for which he was salivated. He subsequently passed through secondary symptoms, had sore-throat and eruptions, for which he took a course of iodine and sarsaparilla, after which he considered himself, and was pronounced, perfectly cured. He still, however, occasionally had aphthous ulceration of the mucous membrane of the mouth, and a few spots of acne on the face, but his health was considered uniformly good.

In June, 1848, not suspecting any syphilitic hazard, he married, his wife being at that time in good health. Nothing unusual occurred until she became pregnant, about two months after her marriage. She stated that her ill-health did not begin until after she became pregnant. At the end of January, 1849, she miscarried at the sixth month. She again became pregnant at the beginning of 1850, and was delivered prematurely in September, the child living some hours. She became pregnant a third time in the spring of 1851, and aborted at the eighth month, in August, 1851, the child being born alive, but dying almost immediately. After each of the first three pregnancies her health became worse than before. Occasional floodings occurred during the course of each pregnancy. The three fœtuses born at the sixth and eighth months respectively were well formed, and free from external signs of disease. Nothing unusual was observed in the placentæ, but no exact examinations were made. Her fourth and last pregnancy began in June, 1852, and she miscarried in the third month, in August of the same year.

In this case, a husband, in such good health as to escape observation, impregnating a woman also in good average health, led to the destruction of four fœtuses, and the saturation of his wife's constitution with secondary syphilis. It appeared to be evident in this case,

that the poison was conveyed to the mother by the ovum. She was healthy until her first pregnancy began, and she became worse after each successive gestation. This patient has at the present time rapidly improved in health under a mild mercurial course, and the husband has been placed under a similar treatment by his medical attendant. No other signs of the syphilitic poison were present in this patient, except the abortions and the leucorrhœa and menorrhagia. It might very well have been mistaken for simple inflammatory disease, but the history of the case, and the effects of ordinary and anti-syphilitic treatment, leave no doubt that the leucorrhœa, and the morbid state of the os and cervix uteri, were dependent upon constitutional syphilis.

Case 2.—The following case I saw with a physician and surgeon of eminence. Mr. ——, during his wife's lying-in, contracted syphilis. He had a chancre, which was promptly attended to, and he was passed through a mild mercurial course. His medical attendant pronounced him, after six weeks' treatment, free from disease, and he returned to his wife's bed. In a short time she became pregnant, but miscarried during the early months. Two or three other abortions followed in quick succession. The wife then bore two children at the full term, but they were both the subject of eruptions from a short time after birth, and one of them, a girl, had a vaginal discharge, which lasted up to the time of puberty. In the meantime, the husband passed through the usual symptoms of constitutional syphilis, but in a very mild form. He had sore-throat and syphilitic, eruptions, both of which recurred occasionally for many years.

Previously to the contraction of syphilis by the husband, the wife had been perfectly healthy, but she dated her declining health from the time of her abortions. She suffered, during many years, from leucorrhœa, and occasionally from menorrhagia; and when I saw her she had a papular eruption upon the os uteri, with profuse cervical discearge. She was, moreover, blind from syphilitic amaurosis, and she was paralyzed in both of her lower extremities. In the early part of her illness she had suffered from sore-throat, eruptions upon the skin, and had lost her hair and eyebrows. The case was a very distressing one, and as its real nature became unravelled, the husband persisted in refusing to believe such protracted mischief could have depended upon his former infection. The entire circumstances were laid before M. Ricord for his opinion, and he unhesitatingly referred the whole train of evil to constitutional syphilis, conveyed to the wife during her pregnancies.

This patient was not treated, her relatives persisting in the belief that so much havoc could not possibly have been produced by the cause assigned. In this case uterine symptoms depending upon constitutional syphilis had lasted nearly twenty years. The leucorrhœa was described as coming on occasionally in outbreaks, and then as being more moderate at intervals, but during the whole time she was never entirely free from leucorrhœal disorder.

Case 3.—Mr. ——, contracted a chancre in 1835, which remained indurated for three or four months. During this time he took a large

quantity of mercury, but he was never perfectly salivated. He has not had sore-throat, but during the years 1836-7 he suffered from rheumatism, and occasionally suffers from rheumatic pains up to the present time. In 1843 he lost his hair and eyebrows. He was never treated for secondary syphilis. In 1843 Mr. —— had gonorrhœa, followed by a gleet for four or five months; but there was no suspicion of chancre at this date. He married in 1845; his wife did not become pregnant till 1850, when she miscarried in the fifth month. She stated that up to the time of her pregnancy she enjoyed moderately good health, but she had not been well since. Her complexion is muddy, she is anæmic, and has a profuse cervicl leucorrhœa. The os and cervix uteri are denuded, and the upper part of the vagina is in an aphthous condition. Her husband is anæmic, but is free from eruption. My suspicions respecting the syphilitic taint in the wife were caused by observing that the leucorrhœa and the spotted condition of the os uteri frequently reappeared after it had been apparently cured. This patient became quite well under the use of mild mercurial course, and the ioduretted sarsaparilla, with the same local treatment which had previously failed. There could be little doubt in this case that the syphilitic taint was conveyed to the mother through the medium of the ovum.

Case 4.—The subject of the following, has been several months under my observation as an in-and out-patient of St. Mary's Hospital. E. R——, aged twenty-six, the wife of a cabman, was admitted into the Boynton ward, April 6th, suffering from pelvic inflammation. She had been delivered three weeks before of a living child. Both herself and the child were affected with secondary syphilis, the history of which was as follows:—Her husband five years ago had a chancre, for which he was treated at the Lock Hospital. At the time of his marriage he had no signs of secondary syphilis beyond a few spots of acne upon his forehead. He had previously suffered occasionally from sore-throat and rheumatic pains in his limbs. His wife was at the time of her marriage in perfect health. Three months afterwards she became pregnant, and in the latter months of gestation suffered from an eruption upon the vulva. After the birth of the child, she had syphilitic eruptions upon the skin, sore-throat, and her hair fell off, so that the front part of the head became nearly bald. The os uteri was also in an aphthous condition, the cervix swollen and denuded, and pouring out large quantities of sanious pus and mucus, both from the canal of the cervix and its vaginal portion. The child was healthy at birth, but when a fortnight old became affected with fissures of the mouth and anus, gummy discharges from the eyes and nose, erythematous patches upon the nates, which passed into ulceration, and it died of syphilis and want of breast-milk at the age of six weeks. After remaining some time in the hospital, the mother became an out-patient, and the principal symptoms of secondary syphilis was the profuse leucorrhœal discharge, which only diminished after a mercurial course. In this case there could be little doubt that the syphilis was entirely of a secondary character.

Since my attention has been directed to this subject, I have seen at least a dozen cases of aggravated leucorrhœa, in which the leucorrhœal disorder evidently depended on secondary syphilis. They were all characterised by denudation of the os uteri, fissures, profuse yellowish discharge consisting of pus and mucus corpuscles, and eruptions of the os and cervix. In many cases in which abortions are thought to be caused by leucorrhœa and the condition of the os and cervix uteri, I am convinced the real source of disease is the secondary poison of syphilis affecting the ovum, and the mother through the ovum. I am also convinced that syphilitic leucorrhœa is as commou a manifestation of secondary syphilis as sore-throat.

In the cases I have narrated, the mothers contracted secondary syphilis from the ovum, without having been the subjects of primary syphilis, I have the notes of several cases of primary syphilis in the female, in which syphilitic leucorrhœa was a prominent symptom of the secondary affection; but more commonly women who become mothers are infected with secondary disease through the medium of a syphilitic ovum.

I have already referred to the occurrence of eruptions upon the os uteri, a condition which has been repeatedly observed by uterine pathologists. But there is one state of the os and cervix uteri which is deserving of particular attention—namely, that in which the so-called ovules of Naboth occur. The vesicles which have received this absurd designation, from an old supposition that they were abortive ovules which in their descent had attached themselves to the os and cervix uteri, are now generally considered to be obstructed mucous follicles. But, it is worthy of remark, that they are often found in situations where mucous follicles cannot be detected; and, after a careful examination of several cases in which these bodies were present, they appear to me to be a form of vesicular eruptive disease, having its first seat in the deeper structures of the mucous membrane. They occur, for instance, very frequently upon the vaginal portion of the cervix uteri, outside the os, where, altho' it has been generally considered plenty of mucous follicles exist, the microscope fails to detect any follicular structure. In this country, the ovules of Naboth have been considered by all writers as obstructed follicles. The most recent foreign authorities upon this subject are, I believe, MM. Huguier and Robin, both of whom have made valuable contributions to the pathology of the generative organs. The first volume of the 'Mémoires de la Société de Chirurgie de Paris,' published in 1847, contains a paper, by M. Huguier, entitled, 'Mémoire sur les Kystes Folliculaires du Vagin,' in which the ovula Nabothi and their transformations are accurately described. M. Huguier considers them to be obstructed mucous follicles of the cervix uteri; but it is not a little singular that in the figured representation of these cysts which accompany the memoir of M. Huguier, they appear to extend far beyond the limits of the cervical follicles; and, in one specimen, the cavity of the cervix, the muscular walls of the uterus, and the broad ligaments are all studded with vesicles or cysts, presenting apparently the same character. M. Robin also has pub-

lished in the "Archives Générales de Médecine," volumes xvii. and xviii. 1848, a "Mémoire pour servir á l'Histoire Anatomique et Pathologique de la Membrane Muqueux Uterine, de son mucus, de la caduque, et des œufs ou mieux glands de Naboth." The greater part of this able memoir is occupied by a minute description of the state of the mucous membrane during pregnancy, but the author is, like other pathologists, of opinion that the ovula Nabothi are nothing more than obstructed Nabothian glands, meaning by the latter, the whole of the mucous follicles of the canal of the cervix uteri. He considers the mucus secreted by the glands of the cervix uteri, identical with the contents of the ovules of Naboth; he is, indeed, so convinced of the truth of this, that he describes the latter elaborately, but considers it unnecessary to describe the microscopical characters of the cervical mucus itself. Notwithstanding these authorities, I adhere to the opinion that these minute cysts are altogether independent of the mucous follicles of the cervix uteri, inasmuch as they are found in situations where no mucous follicles can be detected. These vesicles or cysts are sometimes seen upon the upper part of the vagina, upon the os uteri and external portion of the cervix, within the os, and upon the penniform rugæ as high up as the entrance to the cavity of the fundus. In all these localities they may present similar appearances. They are generally found as single vesicles, and those which are lowest down at the os uteri are frequently the largest in size. It seems as if in some cases they descended from the cervix, though implanted in the mucous membrane, and became larger as they reached the os uteri and the external portion of the cervix. They frequently, however, are developed entirely upon the vaginal portion of the cervix. Sometimes bunches of minute cysts are seen hanging from the rugæ in the middle of the cervix. The covering of the so-called ovules of Naboth, is a thin, fibrous membrane. Their contents are a white, pearly, coagulated matter, in which numerous granular corpuscles, mucus corpuscles, and minute points of oily matter are found. In some of these cysts a considerable quantity of cholesterine is also detected by the microscope.

In the middle of the walls of the cervix, what appears to be undoubtedly obstructed mucous follicles aré sometimes seen. When describing the anatomy of the mucous cysts, I have mentioned that occasionally the follicles of the cervix are so deep as to admit a bristle to the extent of the sixth of an inch, and that the follicular cavities are sometimes obstructed and filled with inspissated mucus. But the appearance of these obstructed follicles, and their microscopical characters are very different from the Nabothian bodies. To the naked eye, the contents of the obstructed follicles are white and opaque. When opened, they have the appearance and consistence of curd; and, under the microscope, they contain myriads of mucous corpuscles, with an abundance of single fat globules, and occasionally large agglomerations of oily matter.

As regards pathology, these small cysts or vesicles seldom appear, except in diseased states of the os and cervix uteri. They are com-

monly attended by profuse discharges from the cervix, with an engorged and patulous condition of the orifice. In the lower part of the cervix, and upon the surface of the os uteri, the walls of the cysts or vesicles become thinner as the cysts become more prominent, and rupture, leaving small pits of ulceration, which may either heal or spread over the mucous surface. When any of these bodies are found in different states of maturity upon the os uteri, the marks of previous vesicles, which have ruptured and discharged their contents, are generally visible. It appears to me that the singular condition of the os uteri, termed vesicular polypus, has its origin in these small cysts. In vesicular polypus a small body, which seems to be nothing more than one of these Nabothian bodies which has become elongated instead of rupturing, projects from the surface of the os uteri, and bleeds as freely as though a small blood vessel were opened. Blood will sometimes slowly exude from these small bodies for many months without intermission, until the patient's strength is quite exhausted by the slow and continuous hæmorrhage. I have seen two or three cases of this kind in which extreme anæmia was produced, but in which the destruction of the vesicle by a pencil of nitrate of silver instantly arrested the hæmorrhage, and in one of these, the causes of the hæmorrhage was only seen after dilating the os uteri.—*Lancet, July* 23.

Cases of Strangulated Hernia.

(St. George's Hospital.)

Two cases of this nature, presenting some interest in a practical point of view, and bearing a close resemblance to each other, have lately occurred at this hospital. They were both operated upon on the same day, the interval between the two operations being but a few hours.

A woman, aged forty-three years, was admitted into Drummond ward, on the 24th of February, with a large femoral hernia on the right side, which had been strangulated for forty-eight hours, during which time there had been no motions, and for a portion of that time constant sickness. The tumour itself, very tense and very hard, was exceedingly painful, even when slightly handled, and the tenderness extended from the groin up to the umbilicus, but there was no tension of the abdomen. The surface of the body was cold, and of a dark-blue colour, with great anxiety and depression of countenance, and a small, thready pulse; in fact the patient appeared to be sinking.

The hernia had first been noticed about two months before admission, but as no inconvenience had followed its appearance, and as it had always been reducible, little or no attention had been paid to it, and no truss had been worn. Some unsuccessful attempts had been made by a surgeon to reduce the hernia the day before the patient's admission, but Mr. Hewett did not make use of the taxis after she came to the hospital, but operated at once.

After dividing the more superficial coverings, a very large quantity of fat was found in the sub-serous cellular tissue, several thick layers

of which had to be cut through before the sac could be reached ; the latter was laid freely open, and in it was discovered a knuckle of small intestine, of a very dark colour, apparently from congestion only. The ring was at a great depth, owing to the obesity of the patient, and the stricture was excessively tight ; Gimbernat's ligament was divided, and the bowel reduced.

On the return of the patient to bed she was ordered strong beef-tea immediately, and some stimulants, if necessary, as she was exceedingly depressed. She rallied a few hours after the operation, and on the following day, was, comparatively speaking, comfortable. The bowels did not act until the fourth day after the operation, and they were then freely moved after a little calomel and opium and some castor oil.

The patient subsequently progressed most favourably, the only drawback having been suppuration of the sac and surrounding cellular tissue. She was discharged cured on the 30th of March, five weeks after the operation.

Case 2.—A man, aged eighty years, was admitted into the Fitzwilliam ward on the 24th of February, with a femoral hernia on the right side, which had been strangulated forty-eight hours, during which time there had been no motions, but constant sickness of a most offensive character. The tumour itself was small, deeply-seated, (owing to the patient being very fat,) and very tender when pressed, with some pain spreading up into the abdomen. There was little or no depression of the countenance, and the pulse was natural. The rupture had, for the first time, made its appearance, when it became strangulated ; the patient had been suffering from very severe cough, in a paroxysm of which the old man suddenly felt great pain in the groin ; and, on putting his hand to the spot, to his surprise there found a swelling. Some attempts at reduction had been made, but latterly he could not bear the tumour to be handled. He was a strong-built man, and notwithstanding his great age, had married, for the second time, two or three years back.

The operation was performed at once. In this case, too, the subserous cellular tissue was found loaded with fat, several thick layers of which had to be cut through before the sac was reached ; the latter was opened, and about a tablespoonful of bloody fluid evacuated. The bowel was exceedingly dark, and covered with a layer of lymph mixed with blood ; the ring was at a great depth, and the stricture very tight. Gimbernat's ligament was divided, and the displaced intestine reduced.

On his return to bed, the patient was ordered some strong beef-tea, and the following morning he was quite comfortable, the bowels having acted freely during the night without the assistance of medicine. He continued to progress most favourably, the only drawback, as in the preceding case, having been suppuration of the sac and neighbouring cellular tissue, which ended in the separation of a small slough. He was discharged, cured, on the 25th of March, just one month after the operation.

In his remarks on these two cases, Mr. Prescott Hewett, having especially drawn attention to the large quantity of fat accumulated in the sub-serous cellular tissue in both instances, stated, that of all the coverings of a hernia, there was none which was likely to present such various appearances as the cellular tissue lying immediately over the sac; and yet of all the coats of a hernia, this was the one which, generally speaking, was the least dwelt upon by anatomists in their descriptions. The different appearances alluded to by Mr. Hewett, depended, in a great measure, upon the accumulation of fat which not unfrequently occurred in this tissue; and such had been the accumulation in both the present cases, that, after dividing the more superficial coverings, upwards of an inch of adipose matter had to be cut through before the sac was laid bare. The fat in this situation being generally very loose and fine, not unfrequently deceived young operators, who were led, by such appearances, to believe that they had to deal with omentum; and such a mistake was all the more likely to occur in those cases where, in addition to the accumulation of adipose substance, there was an effusion of serum, forming a species of cyst between some of the layers of this cellulo-adipose tissue. Mr. Hewett had not unfrequently seen as much as an ounce or two of fluid in these cysts, and such appearances were, it must be confessed, most deceptive even to experienced surgeons.

Mr. Hewett gave the following as his reasons for having at once determined upon opening the sac in both the above-related cases:—The hernia was of recent formation, and especially in the latter instance, in which it had only existed forty-eight hours; the ring, under these circumstances, was probably small, and the stricture consequently very tight; complete strangulation had existed for forty-eight hours, and the tumour was excessively painful; these different points made it, he thought, desirable to ascertain the state of the bowels before it was returned.

We would also call attention to the treatment which was subsequently adopted in these cases. The bowels were left perfectly quiet; and notwithstanding that no action took place in the first case until the fourth day, they acted freely after a little calomel and opium, and some castor oil. There being no inflammatory symptoms after the operation, the patients were put upon a generous diet within a day or two, and this was rendered especially necessary in the second case by the great age of the patient, who, as mentioned above, had attained his eightieth year.—*Ibid.*

Crushing of Urinary Calculi by the aid of the Finger passed into the Rectum.

M. Denamiel submitted, on June 13, 1853, to the Academy of Sciences of Paris, his method of crushing urinary calculi, which he calls lithothliby (λιθος, stone, and θλιβω, I crush). The author starts with the following admitted pathological facts:—1. There are urinary cal-

culi so friable that they break by the least pressure. 2. Alkaline fluids soften the mucus cementing the elements of the calculus, and render the latter friable. 3. The fundus of the bladder, where either free or encysted stones generally settle, is accessible to the finger passed into the rectum, a fulcrum being formed by the staff placed in the bladder.—The counter-indications should be sought in the state of the urinary organs, in the constitution of the patient, his general health, age, and sex. M. Denamiel further observes that the fundus of the bladder is separated from the rectum only by a lamellated tissue in which no fat is ever deposited. The operator should pass into the rectum the index and middle finger of the left hand, and hold the staff with the right; the stone is then pressed from above by the staff, and below by the two fingers, slightly separated, so as easily to hold the calculus between them. If the stone be friable, it will easily be broken by this pressure; water is then injected, and the detritus is washed away by the escape of the fluid. When the stone is too hard, no efforts must be made for fear of injuring the mucous membrane of the bladder, and alkaline injections should be used to effect the disintegration of the stone. The operations are to be repeated as the stone is noticed to soften, and the latter thus becomes crushed layer after layer, while the alkaline injections are steadily continued. When the calculus is placed at the neck of the bladder, in a cyst, in a muscular depression, or the extremity of the ureter, it will be found that the fingers, the sound, and the fluid injected, will easily dislodge it. The author then related several cases in proof of the advantages of his method.—*Ibid.*

Case of Aneurism of External Iliac cured by Galvano-Puncture.

By Edmund U. Eyre, Esq.

William H——, aged thirty-one, sergeant 1st Madras Fusiliers, of sanguine temperament, stout habit of body, and temperate habits, was transferred, on the 2nd of August, 1852, to the garrison hospital, Bellary, with the following statement :—" Suffering from an aneurismal tumour of the left external iliac artery since December, 1851, which unfits him to march with the regiment." I was acquainted with the case, the patient having been under me while in temporary charge of the Fusiliers early in the year. I have not the hospital journal to refer to, but recollect the circumstances at the time of admission, which was a day or two before I saw him. A few days previously he had felt an uneasy sensation in the left groin, extending down the thigh, which swelled, and being unable to walk, he came into hospital. The limb was then much swollen and very painful, but a pulsating tumour in the groin was not discovered till some days after. The history of the case from that time till the 4th of September may be told in few words. The tumour gradually increased till it attained the size of a fowl's egg, pulsating strongly, accompanied with a bruit, which could be traced, two inches above the tumour. The state of the limb varied,

being more or less swollen and painful. The sergeant's health remained remarkably good throughout the long confinement; this in part may be ascribed to the nourishing but non-stimulant diet he was kept on. The attempt to cure by retarding the circulation above the tumour could not be efficiently adopted in such a situation, therefore, as the best means under the circumstances, a well adapted Signoroni's tourniquet was applied to the tumour. With this, pressure was maintained as firmly as could be borne. Whether it was due to this, or that the aneurism remained in a quiescent state, I cannot say, but month after month passed and no change in the state of the tumour occurred; there was certainly no diminution of it, nor abatement of the pulsation, and the question arose—what was to be done? In civil life, if the patient's livelihood did not depend on manual labour, doubtless the course would have been to let it alone; persistent pressure and perfect quiet might in time have effected a cure. But here was a soldier in the prime of life, who for ten months had been performing no duty, and whose return to it might be long postponed. He could not be allowed to be a burden on the State, while to discharge him as ineffective was a hardship to a man in good health, and after twelve years' service. To attempt a radical cure by taking up the vessel above the sac I did not deem justifiable, considering the serious nature of the operation, and that his life was in no present danger from the disease.

I had met with a few cases recorded, where galvano-puncturation was successfully resorted to. It was either in aneurism of small vessels, such as the temporal, or where compression of the vessels above could be maintained; indeed, the arrest of the circulation to some degree above the aneurismal sac was regarded as essential. In this case, owing to the situation, it was impossible to effect it; nevertheless I thought, under the circumstances of the case, it was warrantable to give galvano-puncturation a trial; and on the 4th of September, two long, fine needles, were introduced an inch within the sac, each being connected with the wires of a galvano-magnetic machine. The object was to avoid shocks, and merely pass a current through the sac. Pressure, as firm as could be borne, was made above, but it was insufficient to stop pulsation in the tumour. The sensible effect produced was, pain in the groin and violent agitation of the whole body. At the expiration of twenty minutes the needles were withdrawn. The tumour was pulsating as before. Strict quietude was enjoined. For three days after neither did the aneurismal tumour nor his general health give indications that any effect had been produced. On the 8th it is noted, "Tumour painful; is in a nervous and depressed state; cannot sleep." This condition passed off, and nothing presented worthy of notice till the 12th, when pain in the tumour recurred, and he was again in a nervous, restless state. Leeches were applied to the groin, and sedatives administered. As every circumstance in the case, from this date to the termination of it, is interesting, I will give the prominent features from the entries made at the time in the journal.

Sept. 14th.—Much pain last night in the tumour; there is no change in its external appearance, but he thinks himself that it pulsates fainter than it did before. More leeches; anodynes.

15th.—Considerable erysipelatous inflammation on and around the tumour.

16th.—Much constitutional disturbance. Inflammation has spread round the hip; pain of a burning character; thigh much swollen; tumour pulsates. Purgatives and refrigerents ordered.

17th.—Constitutional disturbance abated, and local inflammation subsided.

19th.—Is very uneasy, nervous, restless, and desponding; complains of general pains; has lost his appetite, and cannot sleep; circulation quickened. The inflammation is quite gone. The tumour appears to be larger, but pulsation not so strong as before. The patient describes an uneasy sensation in the aneurism, which he traces along the course of the vessels to the heart. A bruit is heard in the tumour and along the iliac for an inch or two; heart's impulse and sounds normal. Digitalis and morphia prescribed.

20.—Calmer to-day.

21st.—Is returning to the condition he was in previous to the operation.

22nd.—The tumour feels harder, and the pulsation fainter; the heat, he says, is more in the vessel above than in the groin.

27th.—Tumour sensibly harder, and the pulsation fainter.

Oct. 6th.—Pulsation to-day is very faint.

8th.—Pulsation hardly to be felt.

11th.—No pulsation for the last three days; the tumour is hard and diminishing; no pulsation can be heard by the stethoscope for two inhces above or below the sac.

20th.—No return of pulsation, and the tumour is gradually lessening; limb but little longer than the opposite one; has lost the numbness so long felt in it, and only complains of want of power to walk.

It is unnecessary to continue further extracts from the journal. From the date last recorded to the present, Jan. 4th, 1853, Sergeant H—— has been making good progress in walking.

The remains of the aneurismal sac feels like an enlarged inguinal gland, about the size of a nut. There is œdema of the leg still.

In the cases whose treatment by galvano-puncturation led me to try it in Sergeaut H——, the cure was effected by a continuous current of electricity, producing coagulation of the blood in the sac. One may infer this, by the rapid effect, from a case of subclavian aneurism: "The tumour was felt to be becoming gradually solidified; and before the withdrawal of the needles, it had become perfectly solid, and pulsation was no longer felt in it." In another case of popliteal aneurism, a like rapid effect was not obtained (attributed to the agitation of the pa-

tient) ; still, in twenty-four hours pulsation ceased, and in seven days he left the hospital, walking quite well. This was not the *modus operandi* in the Sergeant's case, but inflammation and deposit of lymph, which filled up the sac. This mode is a hazardous one, and was not intentionally induced. The galvanic effect was probably too violent to produce the former, though the machine—an electric magnetic coil one—was used at its lowest power. I thought at first too little had been done ; but when I found the external sign of the inflammation going on within the sac, accompanied by much constitutional disturbance, I began to fear that too much had been done. I watched with solicitude for the dark spot on the tumour, the forerunner of sloughing. Happily, the threatened danger passed away. The patient was of sound constitution ; he lay in a spacious, well-ventilated ward, and the season was favourable ; under opposite circumstances the event might not have been so propitious. Notwithstanding the medical cure effected in this case, I should reluctantly resort to it again for aneurism of the external iliac, unless I had the electric power under command ;* but still, a successful case by such means may not be without its value in the records of surgery.—*Lancet, July* 30.

Case of an Opium-Eater and Vegetarian becoming Bedridden.

By S. L. Gill, Esq.

On visiting Mr. C——, I found him to be a little, withered creature, apparently seventy years of age, his real age being only fifty-one ; diathesis highly nervous ; skin resembling parchment. He had been a vegetarian for five years, and bedridden for seven months, and taken about five grains of solid opium daily for ten years past.

The skin parched ; pulse 90, and very feeble ; tongue tremulous, and coated with a brown fur. Bowels acted but once or twice weekly, and then only a very small quantity resembling bird-lime was passed. Urine scanty and high-coloured, but healthy. He had bed-sores upon the nates, sacrum, and scapulæ.

In the first instance I acted slightly upon the liver with mercury-and-chalk, combined with aloes, and brought away some filthy stools ; and administered also diffusible stimuli with the tincture of opium, and small quantities of beef-tea ; and placed him upon one of Mr. Hooper's water-beds. In a week he had rallied considerably ; the bowels acted every second day ; tongue clearing at the tip and edges ; bed-sores assuming a healthy appearance. At the fortnight's end he took a mild tonic and stimulant, and seemed to relish the beef-tea, but could not bear the sight of meat ; took a new-laid egg in chocolate twice daily. At the end of a month, he bore small quantities of mutton, chopped into very fine pieces. The limbs were rubbed daily with and without liniments : this treatment was persevered in for three

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* A continuous, uninterrupted current is with difficulty obtained from the ordinary coil machine. Would not the hydro-electric chain be well adapted to the purpose ?

months. The use of the limbs gradually returned, and he is now walking about collecting his own rents, and takes animal food once daily, and one grain of opium night and morning.—*Ibid.*

On Asthenic Pleuro-Pneumonia.—By Dr. Addison.

There exists among the physicians of our hospitals very striking differences of opinion as to the administration of stimulants, both in fever and pulmonary affections. Some give them very freely; others use them sparingly, or withhold them altogether in the same varieties of disease. The line of treatment seems, in fact, regulated not only by the symptoms and the more or less prostration of the patient, but by the manner interpreting these phenomena. Some keep principally in view that pleuro-pneumonia is an inflammatory affection, and that the utmost endeavours should be used to prevent the spoiling of the lung by hepatization or purulent infiltration; and they are therefore little inclined to pour oil on the fire by administering stimulants, even though the patient were rather weak. Others watch very carefully, calculate the resisting powers of the subject, and immediately they see them flag, they combat with stimulants the tendency to death by asthenia, then viewing the actual inflammation as a circumstance of secondary importance. This latter course is certainly the opposite extreme to the bleeding, purging, and vomiting which were current in former days; but it is extremely probable that our mortality from fever is considerably less than it was among our forefathers.

These remarks apply fully to severe cases of pneumonia, in which the symptomatic fever is sometimes so marked that it is not easy to determine (especially as patients apply for admission long after the original attack) whether the inflammation of the substance of the lung, or that unexplained disturbance of the whole system called fever, occurred first. But according to the modern treatment of these affections, a very minute diagnosis is not imperatively called for, as the physicians efforts are especially directed to counteract the nervous depression which accompanies both the fever and the pulmonary affection. On this head we may appropriately quote the following passage of Dr. Billing's late work on "The Diseases of the Lungs and Heart:"—

"There is no danger of confounding these diseases with each other (peripneumonia, and peripneumonia notha), but severe cases of pneumonia have been mistaken for fever of the typhous character on account of the prostration of strength, lividity of complexion, and absence or slightness of cough; for in some most serious cases of pneumonia brought into hospital or even in private practice, the patient may be found complaining of neither pain nor cough; and therefore auscultation should never be neglected in cases apparently of simple fever, especially with typhous symptoms, any more than in measles or other diseases known to affect the lungs."—p. 52.

The case which we are going to place before our readers forms an instructive contrast with those which were published in last week's

Mirror (p. 96), as in those instances the patients were quickly destroyed by the pulmonary inflammation and disorganization, typhoid symptoms only occurring toward the last stage; whilst in the present case the signs were reversed, and the patient recovered, thanks to the timely use of stimulants, which, as Dr. Addison expressed it, saved the man's life. The details of the case were noted down by Mr. Stilwell, one of the clinical clerks.

Henry T——, a workman, aged forty-five years, was admitted June 15th, 1853. The patient was formerly a soldier; he is a tall, fine-looking man, but appears older than he really is. He has been ill about a fortnight, and the present attack came on with pain in the side of the chest, cold shivers, and headache. When admitted, the patient had the appearance of a man suffering from fever; he had had sickness and diarrhœa when first seized, and stated that the cough, which at first he scarcely noticed, has become very troublesome.

There is much pain in the right half of the chest, and on percussing the latter both anteriorly and posteriorly on that side, the dulness is well marked. On applying the ear over the eighth or ninth rib a distinct rub may be heard; by listening carefully, crepitation is distinguished, but the latter does not extend very high up, though it appears to be on the increase. On the left side of the chest no abnormal sounds are heard; the cough is very troublesome; the pain is not quite so great as it has been, although still very severe. On admission, the tongue is white and moist, but not dark-brown and furred, as might have been expected from the appearance of the patient. He is extremely thirsty, and the bowels have been relaxed for some time past. Ordered a blister to the right side of the chest; acetate of ammonia with antimonial wine, and small doses of calomel and opium three times a day.

Second day.—The patient appears to be rather worse than he was yesterday; the rub is not so distinctly heard on the right side of the chest, but the crepitation more plainly. On the left side there is dulness on percussion, but not so great as on the opposite side, where œgophony is heard with facility. The cough is very troublesome, and the expectoration viscid and tinged with blood; the pulse quick and feeble; the heart sounds healthy. The patient has been sick several times during the last twenty-four hours; the bowels remain still relaxed, but he dozed for several hours in the night.

Third day.—A little better; sleep has much refreshed the patient; there is still a little sickness remaining, the pain is much diminished, the skin still very hot and dry, the tongue white and quite devoid of moisture; the bowels have been open several times, and the man passed a tolerable night.

Sixth day.—The expectoration since the third day has become more and more rusty, but the cough less troublesome. Early on the fifth day diarrhœa had set in, most probably excited by the mercury; for this symptom chalk mixture was administered. The looseness of the bowels soon gave way, and on the eighth day the patient appeared ra-

ther better. He was, however, very weak, and was ordered six ounces of port wine, double the quantity of beef-tea and arrowroot. The man's countenance is clearer than it has been ; the tongue is growing dark ; the pulse is about 100, feeble ; all pain in the chest has disappeared, but the rub is still to be heard on the right side, with crepitation ; the inflammation appears to be subsiding, but there is delirium at night.

Ninth day.—Slightly better ; the patient's powers are, however, very feeble ; the delirium continues, and the tongue is becoming thickly furred. Ordered two ounces of brandy.

Tenth day.—Mucous rales are now to be heard on the right side of the chest ; the crepitation and friction have disappeared ; the delirium is diminishing.

Eleventh day.—The patient remains in the same state ; if anything, he is more feeble ; pulse 90, weak ; tongue dry, and covered with a thick brown fur ; skin moist and clammy ; bowels open during the day ; the urine is still loaded with lithates. He was ordered by Dr. Addison, (who thought that there was but very little hope for him,) double allowance of beef-tea and of arrowroot, with four ounces of brandy. Respiration slow and difficult.

Twelfth day.—Rather better ; respiration much freer ; general diaphoresis ; skin warm ; pulse 80, easily compressible ; tongue cleaning, but still much furred ; aspect flushed. The man converses more freely ; he passed a tolerable night, but, the bowels have been slightly relaxed. On the whole, he is much better.

Thirteenth day.—Great improvement ; respiration is now quite free, and the skin is quietly perspiring ; tongue cleaner, slightly furred down the centre ; pulse 84, more full ; bowels more regular. The patient complains of a slight pain in the right side of the chest ; he is, however, too weak to be examined.

Fifteenth day.—Appetite returning ; pulse strong ; bowels regular. Two days afterwards some meat was ordered ; the patient continued his wine and brandy for some time longer ; and was discharged quite convalescent July 27th.—*Lancet, August* 6.

Diabetes Mellitus not Incurable.

M. Schutzenberger, professor of Clinical Medicine at the Faculty of Strasburg, has just published a case, which would tend to show that diabetes mellitus may, by appropriate treatment, be in some degree arrested, and the patients be restored to comparative health. M. Hepp, the chief pharmacien to the hospital, examined the urine almost day by day, and thus was the physician able to ascertain with great accuray the progress of the case, and the influence of the treatmeut.

The patient is a countrywoman, forty-seven years of age, who, after enjoying good health all her life, grew gradually thin, lost her strength, and was tormented with great thirst and a most voracious hunger.

She was admitted into the hospital on the 10th of November, 1851, and presented all the symptoms of the disease. From the 11th to the 14th the patient was watched without any regulation as to the food or medicine, and she was noticed to feed largely. For the subsequent week the food, which consisted of a quarter of a pound of bread, two chops, two eggs, and a small allowance of other meat, was carefully regulated, but no medicine given. In this week the quantity of sugar diminished from seventy parts of sugar in a thousand parts of urine to fifty-six. An attempt was then made to substitute gluten bread for the ordinary article, but the patient could not take it.

The use of opium was began at this period, three pills, of a little less than half a grain each being taken in one day, and the tolerance was soon sufficiently established to increase the number of pills to twenty per diem. The patient was taking at the same time fifteen grains of theriaca, (an ancient compound having opium for its basis,) and from fifteen to forty-five grains of bicarbonate of ammonia. With these medicines and the above mentioned diet all the symptoms improved ; the amount of urine did not exceed the fluids ingested, and the specific gravity became reduced from 1·0376 to 1·0278. The absolute amount of glucose excreted in twenty-four hours fell, at the end of a fortnight, from about half a pound to a little more than two ounces.

For the next three weeks no change of importance took place ; but as it was noticed that the patient procured sweetened diet drinks, she was restricted to plain water, to weak solutions of carbonate of soda, or Vichy water. This change gave rise to a fresh diminution in the amount of glucose, which became reduced from half a pound, the original quantity excreted in the twenty-four hours, to two ounces, or 19·78 parts in a thousand parts of urine. The opium was left off on several occasions, on account of giddiness, somnolence, or gastric derangement, but the use of the medicines was always resumed in a short time.

On the 20th of January, 1852, almost two months after admission, bread was given up altogether, and on the next day the absolute amount of sugar fell to a little more than three drachms in the twenty-four hours. Finally, from the 22nd to the 30th of January, glucose entirely disappeared ; but it was now and then found again afterwards, varying from between a third of an ounce to two ounces in the twenty-four hours. These variations were all caused by errors of diet, and the patient generally confessed her irregularities. Milk had no influence on the amount of glucose ; one pint a day produced no unpleasant effect, and the patient consumed besides, in the course of the summer, small quantities of olive oil and butter.

It would be tedious to follow up all the oscillations during the whole of 1852 ; suffice it to say, that for days together no glucose was excreted ; it then used to re-appear in the urine and again vanish entirely. The general health improved in the meanwhile, and at the beginning of 1853, the treatment by opium, alkalies, and the regulat-

ed diet, having all the time been carefully persevered in, the glucose disappeared completely from the urine, and the patient was able to resume the use of bread, of which she took from three ounces to a quarter of a pound a day, along with potatoes and vegetables. Glucose was only once noticed in the urine in February, 1853, but soon disappeared again.

The patient can now use a mixed kind of food without excreting any sugar—viz., meat, a quarter of a pound of bread, and vegetables; but the tendency to relapse is certainly not annihilated, as was shown in February; which relapse was caused by the ingestion of a large quantity of potatoes. The health is good, the thirst is not troublesome, but the patient eats little, and the muscular system has certainly not recovered its former energy. In March, 1853, a little albumen was detected in the urine, but no sugar re-appeared. The patient will be kept in the hospital to the end of next winter; and though M. Schutzenberger does not look upon the cure as completely radical, he thinks that relapses may be avoided by adhering to a diet composed of meat and feculent substances in regulated proportions.

Some facts, not mentioned above in order not to interrupt the narration, are adduced by the author at the end of the paper. It was, for instance, noticed, that the sugar diminished considerably after a smart purgative; but the fœcal matter then contained a large proportion of sugar, whilst the ordinary solid motions contained none. A chemical examination also proved the absence of sugar in the sweat and saliva of the patient. The author concludes his paper by the following series of rules and deductions:—

1. Glucosuria is not an incurable disease, and although the tendency to relapse is certain, it is possible, by perseverance, not only to remove the sugar from the urine, but also to bring the patients so far as to bear a varied diet, in which feculent substances may enter without causing a relapse.

2. The amount of glucose excreted by patients is sensibly proportionate to the quantity of feculent matter added to the food, and it is possible to discover errors of diet by the increase of the glucose in the urine. The quantity of urine is equal to that of the fluid ingested, and the latter also proportionate to the amount of the feculent substances taken into the economy.

3. Diet forms the principal part of the treatment of glucosuria; the food ought chiefly to consist of milk, fatty substances, butter, oil, eggs, and meat.

4. The entire banishment of feculents seems necessary to make the sugar disappear completely.

5. Small quantities of bread—viz., about three ounces per diem, are generally well borne, and do not excite a fresh secretion of sugar when once it has disappeared.

6. The powers of assimilation increase gradually, and it is possible,

by means of chemical analysis, to ascertain the extent to which the peculiar diet and medicine ought to be carried.

7. The effect of the diet is powerfully assisted by the use of certain therapeutic agents, and especially by opium, in increasing doses, and by alkaline drinks. In this affection the tolerance of the opium is very great.

8. It is certain that the glucose is formed in the alimentary canal, and that the absorbents generally take it up, so that solid motions come to contain no sugar.

9. Purgatives may cause a diminution of glucose in the urine, as more or less of the sugar which would have passed into the urine is carried away by the liquid stools.

The author does not enter into any theoretical discussion touching glucosuria, as his object was merely to call attention to a series of interesting and instructive facts.—*Ibid.*

MISCELLANIES.

SURGERY,

On Hæmorrhagic Cysts of the Neck. By MM. Seutin & Michaux.

M. Seutin treats not only of the *hæmorrhagic*, but also of the *serous* and *hæmatic* cysts which are met with at the anterior part of the neck. The serous cysts contain serosity of different colours and degrees of transparency, and the hæmatic a dark grumous fluid, which is evidently blood that has undergone transformation during long sojourn in the cysts. The hæmorrhagic, if opened, furnish large and dangerous quantities of fluid-blood, which will continue to exude from the walls of the cyst after it has been emptied of its contents.

M. Seutin has paid much attention to the pathological anatomy of these cysts. The serous form is composed of a whitish or transparent membrane, analogous to serous or synovial membrane, which, usually smooth on its internal surface, may be rugous, when the fluid it contains becomes grumous. The cellular tissue on which it lies sometimes becomes, and especially in old cases, thickened and condensed, giving it a cartilaginous feel, and rendering its distinction from a solid tumour difficult. The lining membrane of the hæmatic cysts is of a similar character, but it is usually much more rugous and dark, as if ecchymosed. That of the hæmorrhagic cysts is entirely different, being neither uniform, like the serous, nor rugous like the hæmatic cyst, but of a soft, spongy, velvety character, composed of numerous minute interlaced vessels, resembling, in fact, erectile tissue. The vessels do not open by apertures into the sac, for injections will not penetrate ; but the blood is discharged by exudation.

The hæmatic and hæmorrhagic cysts bear a certain resemblance to each other, inasmuch as both contain blood ; but while in the first case, the blood, if removed, is succeeded by turbid serum, in the other,

renewed hæmorrhage takes place. This hæmatic form may have been produced in different modes. 1. Blood effused into the cellular tissue may, by the irritation it causes, lead to a condensation of this around it in the form of a sac. 2. An originally serous sac may become converted into a hæmatic one by contusions, which rupture its parietes and lacerate its vessels. 3. At one period, the parietes of a hæmatic cyst may have been of the same structure as those of the hæmorrhagic; but by reason of the compression exercised by the tumour or a diminished afflux of blood, the vessels composing it underwent diminution or obliteration.

When the cysts occupy the *thyroid gland* itself, they may be due to the development of one of its areoles, as suggested by Lebert; but their production is probably quite as often due to another mechanism. The patient usually attributes their origin to a blow. This probably gives rise to effusion of blood, and the conversion of the surrounding cellular tissue into a cyst. If the blood remains on this, the cyst continues hæmatic. If the colouring matter is resorbed, it becomes serous; while, if continued determination of blood to the point leads to dilatation of vessels, it takes on the hæmorrhagic form. As was to be expected in so vascular an organ, the hæmorrhagic cysts of the thyroid gland are by no means rare.

The cysts may also form in other parts of the neck, being formed by the condensation of cellular tissue arouud the effusion of blood due to traumatic causes, or an effusion of serum due to irritation. They may also become developed within the lympathic gland—the proper glandular substance disappearing by transformation into a cyst.

M. Michaux describing only the hæmorrhagic form of cysts under the title of *Hæmatocele or Sanguineous Cysts of the Neck*, believing them to constitute a form of tumour of the neck hitherto unnoticed. He considers the tumour to be quite distinct in its nature from vascular goitre, aneurism, erectile tissue, or fungus hæmatodes. As no opportunity has, however, offered itself to him to examine the parts after death, his views of its nature is somewhat conjectural; and we have no doubt that the tumour he alludes to, as giving rise occasionally to troublesome hæmorrhage, is the hæmorrhagic cysts of M. Seutin, lined with erectile tissue. He recommends an exploratory puncture to be made, and if the blood is found so fluid as to admit of the cyst being emptied, an iodine injection may be thrown in; while if it is too thick to obtain issue, the sac may be incised through a part or all of its extent—a practice, however, which he admits is sometimes dangerous.—*L'Union Médicale*, No. 33; *Gaz. de Hôp.*, No. 36.

Observations on the Operation for Cataract. By M. Sichel.

M. Sichel, in some observations on cataract, recently drew attention to the case of a young girl, in whom he had lacerated a secondary capsular cataract, as exemplifying the *hereditary* character of *congenital cataract*. Her father and uncle were both operated upon, about

two years since, for congenital cataract of both eyes, which, however, had only become complete in the 33rd year—an interval of a year elapsing in each case before such completion and the operation in the second eye. The cousin of the girl, æt. 15½, son of one of the brothers, was operated upon at 18 for a congenital cataract, which had become complete at 14. There is one in the other eye not yet complete. In none of the ascending branches of the family had cataract manifested itself.

Influence of Position after the Operation.—In this young girl, one of the capsular shreds remained floating at the upper and inner part of the pupil; and M. Sichel resorted to the simple expedient he is accustomed to employ on such occasions—viz., causing decubitus on the side of the body towards which the mobile capsular shred inclines, and towards which it is in this position drawn by its own weight. It then disappears definitely behind the pupil, contracting adhesions with the posterior surface of the iris.

Mode of Operating.—M. Sichel does not give exclusive preference to any mode of operating. He depresses hard cataract at all ages, although he prefers their extraction in the aged, in order not to leave the lens as an irritant body, capable of giving rise to internal inflamamtions, difficult to combat in persons with whom antiphlogistic means must be used so cautiously. He breaks up all soft or half-soft cataracts in individuals below the age of 40, and especially below the age of 30, and exceptionally above the age of 40. He extracts in senile, soft, and half-soft, in individuals above 40, and especially above 50; as in these latter the breaking-up such cataracts are follwed by considerable swelling of the lens, which compresses the internal membranes, and causes violent inflammation. If this is attacked with vigour, debility and marasmus follow; while, if attacked insufficiently, disorganization of the internal membranes and incurable amaurosis result. In persons below 40, and especially in children from 6 months to 15 years, tolerance after the use of the needle by a skilful hand is very great; while reaction is inconsiderable, especially with the last-named, and between 20 and 40 the resistance of the constitution to the consequences of antiphlogistic treatment is at its maximum. Thus the normal, electric operation is extraction for soft and half-soft senile cataracts, breaking-up for soft and half-soft in the young, and especially for congenital cataracts, which are seldom very consistent. Hard cataracts may be depressed at any age; but should preferentially be extracted in old age.

M. Sichel always extracts by the upper section, the advantages of which, owing to the complete and prompt cicatrization of the wound, are very great. The upper eyelid forms a kind of supporting bandage, the effect of which is still further increased by the mode of dressing adopted. This consists in the application of five strips of adhesive plaster over the eyelids of each eye, and then of graduated compresses, in such a manner, that the chief compressing power is exerted on the edges of the wounds. The whole is supported by bandage. In this

way a gentle compression prevents the edges of the wound becoming separated during the movements of the patient.—*Gaz. des Hôp.*, No. 54.

MIDWIFERY,

On the Etiology of Mammary abscess. By M. NELATON.

M. Nelaton states, that, as the result of his examination of the history of a great number of these cases, he is very sceptical as to the truth of the supposition which attributes their occurrence to exposure of the breasts. He believes that abscesses are very often due to the existence of chaps or sores of the nipple, whence the irritation is propagated along the lymphatics of the organ—just as a wound of the foot or hand will give rise to inflammation in the vicinity of the glands of the groin or axilla. Once excited in the breast, the inflammation may become speedily propagated to the deeper parts of the organ. M. Sappey's preparations of the lymphatics exhibit the great abundance of these vessels, which almost all arise at the nipple or areola, spreading and ramifying from this common centre in all directions along the fibrous partitions of the gland. Another important point is the pretty direct relation which exists between the situation of the chap and that of the mammary inflammation. If situated at the upper part of the nipple, the inflammation will usually be found at the upper part of the breast, and so on for the other localities.

The case which immediately gave rise to these observations also led to another of interest in relation to *diagnosis*. The puncture, after having at first furnished pure, healthy pus, yielded a sanguinolent pus to compression two days afterwards. It may be laid down as an *absolute rule*, that whenever an abscess at the surface of the body thus comports itself—the fluid taking on a bloody appearance without obvious cause—a second abscess has become developed in the vicinity of the first. Our attention being thus directed to this point, we shall usually be able to discover this second tumour. The wall interposed between the two collections becomes the seat of great turgescence, and of a considerable afflux of blood; and a sanguineous transudation takes place into the interior of the first cavity.—*Rev. Med. Chir.* xiii. 169.

MADRAS JOURNAL OF MEDICAL SCIENCE.

OCTOBER, 1853.

That life cannot be sustained without nourishment, is a physiological fact so generally known, that there is no other necessity for now bringing it to the notice of those of our Subscribers who belong to the Department, except that of pointing out the danger that this Journal is threatened with,—arising from a want

of original communications—and by this means of rescuing it from a premature and inglorious termination. After having been so ably edited, this Journal is now come into our hands, as Mr. Norton,—who cannot be too highly praised for his perseverance on its behalf—declined to conduct it any longer, because he did not receive the assistance expected from those in the Service. The support now requested is, original articles of some interest: no matter how small the amount. Without this, the Journal cannot be published as being "conducted by Subordinates of the Madras Medical Service." Having pointed out the remedy, we earnestly implore that it be not withheld from us, and promise on our part to uphold the character of the Journal to the best of our ability. It is highly essential that a proper understanding exist between parties entering into a contract.

An Article styled "Observations on Animal Heat," extracted from the *Lancet*, occupies a space in this Journal. The author of the article objects to the following theory. "The oxygen absorbed by the blood in the lungs is carried ro the capillaries; there heat is evolved by the formation of carbonic acid and water, which are then carried by the venous blood to the lungs, there exhaled, and a fresh supply of oxygen taken in." His objections are two, and he calls them *grave*. They are,

"1st. The temperature of arterial blood is about two degrees higher than venous."

In our humble opinion, the temperature of arterial blood must necessarily be higher than that of venous, and our reasons for maintaining it are the following.

Though such a degree of heat must be evolved in the capillaries by the formation of carbonic acid, as to lead one to suppose that the venous blood coming from them must possess a much higher degree of temperature than that of arterial; yet other functions, as those of secretion, excretion, and nutrition, are performed by these vessels; and the fluids of secretion, excretion, and nutrition, take away a considerable

amount of this heat. Were this not the case, the temperature of the body would always be at fever heat; and by adopting this view, we can account for the heat present in fever: for the secretions and excretions being diminished or suppressed in this disease, the heat also is retained in the blood; the amount of heat generally bearing a relation to the degree of diminution of the secretions. Again, the fluid that is absorbed from the tissues, and that which comes from the thoracic duct; in obeying a chemical law, abstract a portion of heat, and cause an equilibrium of temperature, on entering the venous circulation. The above remarks, we think, point out the ways by which the diminution of the temperature of venous blood takes place; and the evolution of a small quantity of carbonic acid in arterial blood, after the absorption of oxygen in the lungs, together with the heat arising from muscular action in the arteries, account for the slight excess of temperature,—only two degrees —of arterial over that of venous blood.

"2nd. The free and easy manner with which the venous blood is loaded with carbonic acid."

It is stated that carbonic acid, even in very small quantities, is a dangerous poison, and we say that it is—*under certain conditions.* Carbonic acid is a poison when it enters into the lungs, excludes atmospheric air from them, and thereby prevents; the escape of the acid which is brought from the system to the lungs; and the absorption of oxygen in its stead, by arterial blood. But carbonic acid is not poisonous when present in venous blood, because it is on its way to be thrown out of the system. Anything that prevents its being thrown out of the system, and by doing so excludes oxygen from entering into it, makes carbonic acid a poison. It is no more a poison when in venous blood, or in the stomach, than atmospheric air is when in the lungs: but is as deleterious to life when inspired, as the latter is when it finds its way into the cavities of the heart. Many substances, *poisonous in themselves,* do not prove so when not in excess, and when confined to certain parts of the system: and as many not at all poisonous, de-

stroy life by being out of their proper places. We nowhere see that we are required to suppose the system to be saturated with carbonic acid. While an attempt is made to prove that there are no uncombined elements in the body, a theory is considered as more satisfactory, which infers the existence in the blood of uncombined carbon and hydrogen. The carbonic acid in the blood is not *free*, but in a state of solution. The process for obtaining carbonic acid from blood by agitating the latter with atmospheric air, is said to be ridiculous, on the supposition that carbon is present in the blood and unites with the oxygen of the air, to form it. But the evolution of carbonic acid, when blood excluded from oxygen, is agitated with hydrogen or nitrogen, or when an animal is made to breathe nothing else but one of these two gases, is not accounted for. It is caused by the displacement of carbonic acid, by either of these gases; and establishes the theory that supposes its existence in venous blood. When Nitrogen or Hydrogen alone is inspired, death does not follow so quickly, as when carbonic acid is used for that purpose; because, in either of the former cases, carbonic acid continues for a short time to be thrown out of the system. But death is a speedy consequence of breathing carbonic acid; resulting, both from the escape of that contained in the blood, and of oxygen entering into the system, being prevented.

We are unable to comprehend that part of the article which says, that "in paralysed limbs, where the circulation is enfeebled, there is not only increased temperature, but also swelling of the muscle." We believe that muscular action, is attended with evolution of heat, and an increase in the size of the muscle.

Under the head of Communicated will be seen an article, on a step lately taken by the Bombay Government authorising the admission of Natives into the Warrant branch of the Medical Department. The author of the article remarks upon the progress of education in Bombay, and upon the disposition of its Government to reward merit in the Natives, which he says is very creditable to it: but thinks that this benevolent feeling

should not be confined to one class of public servants, to the utter exclusion of the other. Those who were promoted by this step were extremely fortunate, for not only did they obtain a high grade, but by some Soldiers in an Hospital showing an aversion to them, were by a stroke of policy, removed from Regimental duty, and appointed to good and easy posts, then occupied by Apothecaries of some standing in the Service. What a pity the Soldiers did not keep quiet. These poor Apothecaries may be likened unto so many scape-goats, for they had to run away with the sins of insubordination committed by the patients. The writer of the article thinks that the step, if adopted by this Government, will be sorely felt by those who now hold the Warrant grades, and hints that the one-sided kindness of Government is a problem very difficult of solution.

We do not see why encouragement should not be held out to all in an equal degree, and merit alone be made the criterion for advancement. There can be no objection to the rank of Apothecary being thrown open to competent Natives, or that of Native Surgeon placed within the reach of qualified Apothecaries. But as this is not the case, if the Apothecary be elevated to a new position as respectable as that of Native Surgeon, he will have no cause to think that he is neglected, or that the fostering care of Government,—a share of which he is anxious to have—is bestowed on the Native alone.

Let us glance at the prospects of an Assistant Apothecary on the one hand, and of a 2nd Dresser or a Stipendiary Student on the other, and see if the former will not gain by a *complete* amalgamation of both branches of the service. The Native becomes a Student at an early age; studies for the space of five years; then leaves College on a very good salary; leads a very quiet and easy life; in a few years more has his salary increased to a considerable amount; becomes placed in easy circumstances, and ends his days in peace. The Dresser, after ten years' Service, can place himself in the same position. But the Assistant Apothecary, who attains this rank at the age of twenty-two or twenty-three, receives the salary of Rupees 55; to which he gets no in-

crease till the expiration of twenty years' laborious servitude. He is at this time encumbered with a large family; is unable to give his children a proper education, both from want of means, and from being moved about from station to station; and is not as well paid, taking all things into consideration; as a passed apprentice who gets Rupees 30, and has no mouth but his own to fill. It may be advanced that the rank of Senior Apothecary, which may be attained by the Warrant Officers only, is equivalent to that of Native Surgeon; but how can this be made out? The latter appointment is within the reach of any intelligent young Native, or of any qualified Dresser who has completed ten years' service: but how small is the number of Assistant Apothecaries, that can hope to become Senior Apothecary; and how much smaller the number that actually becomes such. Neither merit, nor the highest qualifications can assist one in mounting up to that grade; nothing but service for the *period of half a century* can reach it! Before this *qualification* is obtained by a very few, how many a deserving servant of Government will have left the service, through being worn out; and how many will have been laid low by the mighty hand of Death! The Apothecary, it would appear, is qualified to fill the post of Native Surgeon; for though it was made for the purpose of placing European medical treatment within the reach of those Natives who are considered to be averse to receiving it from any but a native; Native Christians, who are not tolerated by the Caste Natives,—many of whom have pensioned Apothecaries for their Medical attendants—obtain this appointment. If both the Warrant rank and the Native Surgeoncy be thrown open to men of all castes and colours, and merit alone in any be considered as entitling one to promotion, a strong and determined spirit of emulation will be engendered; the Government will gain the advantage of possessing well qualified servants; all interested will be quite content; and the Apothecary will have no fear of the rank which is now held by those of his class—in which he hopes to see his children enlisted—being thrown open to the Natives, and of being excluded from appointments held by them. This

is a way by which the State can obtain a much greater amount of benefit without incurring additional expense.

If these concessions be granted, or if another appointment equivalent to that of Native Surgeon be made, and attainable only by Apothecaries; the service will, we think, get a superior class of servants, by adopting the following plan.

At present four classes attend College, and each class contains about 20 students. Doubling the number of students in each class, having one half as Military and paid students; and the other half as private students without pay, but with the hope of taking the place of the former if found better qualified at the close of each session; those found unqualified among both private and Military students being transferred to the lower class, and the one being deprived the advantages of attending the College, and the other dismissed the service, if twice transferred and yet found unqualified.

We would advise the Apothecaries not to rest quietly without exerting themselves, in the hope that something will be done to ameliorate their present condition; but to strive with all their power to bring it about as quick as possible. It is true that nothing has occurred to encourage them to do so, but those who do not attempt to assist themselves will not get others to come to their assistance. This is a general rule with *an exception.* Recollect how the followers of Loyola denied themselves all comforts; banished themselves from their homes to find others in the remotest parts of the world, among nations they knew not; sacrificed all domestic ties; and even fettered nature to achieve their object. We do not say that they were right, but merely point out the amount of energy displayed in a bad cause that some may be exerted in a good one. The Gorvernment may yet do something for you. Strive then with all your might to show that you are worthy of being advanced to a higher position.

Among our original articles, will be found a creditable one from Apothecary H. Theobald, on the use of Lime juice for the

prevention of the confluency of small pox. We are of opinion that a further trial must be given to this remedy, before it can be said to have some other and a better effect, than the diuretic property possessed by it,—in common with other acids of the same class—in preventing the confluency of the pustules. It is said that the acid must not be used in severe cases, attended with urgent symptoms of the brain or of some other important organ; and as these are the cases generally, in which the pustules become confluent, we are unable to see how confining the administration of it to the milder forms of the disease will prove its efficacy. The remedy deserves a fair trial and we are thankful to Mr. Theobald for his contribution.

Some native prescriptions, and others that owe their origin to Mr. Shortt, will be found in this journal. The white oil is no more than calomel suspended in oil, for no degree of soaking in milk can change the former. We are told that the oil of Sarsaparilla can be obtained by boiling it with butter, but it is plain that the oil comes from the butter and not from the Sarsaparilla, which contains none. It is also said that any one of the ingredients entering into the composition of the senna chatney may be omitted. What will it be, when the senna is left out? We prefer the use of the alterative preparations of mercury that are to be found in the Dispensatory, to that of the calomel and oil; the Essence of Sarsaparilla to that which is called the *oil* of it; and the confection of senna to the new prepartions of that remedy. Combining medicine with food must prove hurtful by disturbing the process of digestion. Much of the weakly condition of children, depends on the injudicious and too liberal use of medicine, being substituted for exercise and proper diet We hope that Mr. Shortt, who is very energetic, will stumble upon some drugs, used by the natives and unknown to us; like. the Hydrocotyle, which was used by them in the treatment of secondary syphilis and diseases of the skin, and which really possesses some medicinal virtue, but was set aside for calomel, because this remedy produced a more speedy effect.

With much pleasure we inform our brethren in the Service, that the Proprietor has kindly consented, for the future, not to charge parties for Numbers containing their Original Articles. He also intends paying for good ones when the Journal is better supported. We are prepared to receive authenticated correspondence on *professional subjects only*, as we are inclined to attribute the paucity of communications, to unwillingness in many from want of confidence in themselves, to be known to the public as authors.

Original Communications.

[COMMUNICATED.]—"The *Athenæum* of the 13th Instant, contains a reprint of an article published in the *Bombay Times*, relative to the admission of Natives to the Warrant ranks of the Subordinate Medical Department. The writer alludes to the manner in which the newly-appointed Native Apothecaries were received by the sick Soldiers of the Bombay Fusiliers and Artillery, and remarks on the aversion that European Soldiers have to native superiors in any shape. In Bombay, education has been making rapid strides, and medicine, in common with other sciences, has been successfully prosecuted by natives. The enlightened men at the head of the Government have made it their study to open out places of trust and emolument to intelligent Natives, and this they have done in their desire to reward merit wherever it may be found, irrespective of caste, creed or color. To their honor be it said that their measures bear the stamp of liberal-mindedness, and altho' we congratulate our Bombay brethren on being placed under the direction of such gentlemen, we cannot help, at the same time, expressing our regret, that the elevation of Natives to the Warrant ranks should have taken place without any corresponding benefit to that class which has hitherto monopolised these situations.

However desirous we may be to see perfect equality esta-

blished between all men in this country, and anxious as we are to see the barriers which prejudice has erected between man and man removed by the advancing tide of civilization, we ourselves are, under existing circumstances, opposed to any such innovation as that under notice. We believe that such a measure if brought into operation in this Presidency would create much confusion which years of prudent management would not remove, and further we believe that the Members of the European branch have not their minds sufficiently prepared to receive men into their ranks who have hitherto occupied a position inferior to them in the Medical Service, without murmuring and giving way to feelings of discontent which would operate detrimentally to the Service at large.

Education will ere long divest Europeans of the greater part of their prejudices, and will also assimilate the native mind to that of the European. When this double effect has been produced, then, we think, no difficulty will be experienced in causing them to fraternize. When the European in India has been taught to look upon a native as his equal in point of intellectual and moral acquirements, and to divest himself of the caste feeling which makes him believe that he and all his light-colored brethren are superior to the races of India, and when, on the other hand, the native himself, rising superior to the prejudices of caste and custom, (tho' the growth of centuries) begins to think that all men are equal, then equality will come about as a natural consequence. The energetic efforts made by educational zealots at present towards the accomplishment of such an object are premature and only tend to foment those differences which it is their object to efface.

Hitherto the subordinate department has consisted of two distinct branches, the Apothecaries' branch being open only to Europeans and East Indians, and the Dressers' branch to Natives. The object of Government has all along been to preserve these as distinct branches, and to oppose the admission into the higher grade of any individual from the Dresser's branch; and the Apothecaries themselves, from long usage,

have begun to look upon the Warrant Ranks as patent to individuals of their own class alone. Should a fusion of ranks take place in the Subordinate Department, the Apothecaries will naturally become interested in breaking down all systems of exclusiveness in the Department and will never rest contented till they have wrested from the hands of Government, advantages equivalent to those which they may be obliged to resign to their Native brethren. It does not require much penetration to see how, on the one hand, the Commissioned branch of the Medical Service is hedged in by insurmountable barriers, and, on the other hand, how the Surgeoncies thrown open to Natives have been secured to them alone by the operation of exclusive orders.

It has puzzled many to account for the one-sided kindness of Government of late years towards the native branch of the Medical Service. They have created Surgeoncies for them and have made other attempts towards their elevation; but they have shown a decided aversion to any thing in the shape of improvement for a more intelligent, trustworthy and deserving body of their servants. It is admitted on all hands that Apothecaries have been steadily progressing for the last 10 years or so. The Court of Directors, the Medical Board, and the College Council have admitted this fact, but to this day nothing has been done towards the improvement of their social condition, which we candidly confess is low. They have been for several years past in as miserable a plight as the prophets of Baal who cried from morn to eve, "Baal! hear us," and he heard them not.

It is an admitted fact that the elevation of the understanding creates social wants in proportion to its extent. An enlightened mind is always aspiring after something, and in the generality of instances, this *something* takes the shape of a desire to emerge from that subordinate position which is assigned to every Apothecary in the Service. It is fashionable, now-a-days, to speak of the feasibility of highly educating Medical Subordinates, of inducing them to continue the study of the Profession from a love for it, and of ensuring

contentment with their prospectless condition by occasional paltry prizes. On this point, we range ourselves with sceptics. A high order of intelligence and life-long subordination are incompatibles. We may as well expect fire to burn under the extinguishing action of water. Those who dispute this point are not sufficiently acquainted with the human mind,—they lose sight of the main springs of human actions.

On the prevention of the Confluency of Small Pox.—By Apothecary HENRY THEOBALD.

It is a most painful fact and one which few of us can have failed to have observed without feelings of pity for the sufferer, that the relatives and friends of an individual labouring from an attack of small pox are compelled for their safety, to keep away from him; and at the time when he most needs their assistance, to find that he is deserted by those who, by the ties of consanguinity, or long and tried friendship, have it in their power to afford him that consolation which is so necessary to smoothen the bed of sickness, and, in some measure, alleviate the anxiety of his distressed mind. For this alas, there is scarcely any help, as every one, relative or acquaintance, considers his own safety paramount, particularly when he is in danger of being exposed to the influence of this infection. Although enjoying a very great degree of security from an attack of small pox by the protective power of vaccination, few indeed will be found willing enough to attend upon one labouring under the contagion, who could be induced, apart from a sense of duty, or the promptings of affection, to hazard their safety without fear of being similarly attacked with the dreadful disease. This natural anxiety for one's preservation is increased when the disease is of the confluent kind.

It has often been a subject of anxious thought with me, to discover, not by some felicitous accident, but from an attentive consideration of the virtues of several articles of the Materia Medica, a medicinal remedy capable of exercising some influ-

ence in mitigating the severity of the disease, as well as of preventing its taking on the confluent character. No doubt others also have given the subject their most attentive consideration with the same object in view, and have brought to their aid whatever they considered most likely to answer the intended purpose. My deviation from the plan of treatment which has hitherto been in use for the palliation of the severity of small pox, will I trust be excused, when the object of my departure from the beaten track is taken into consideration.

Lime juice, in my opinion, has the power of moderating the peculiar inflammatory action of variola; of checking to a certain extent the effusion going on during the different stages of the eruptions, until the period of maturation; and thereby diminishing the danger of the pustules becoming confluent. The febrile symptoms preceding the appearance of the eruptions, are to be treated with the usual febrifuge medicines, as the circumstances of the case may indicate; but on the appearance of the eruptions, lime juice and extract of Hyoscyamus should at once be had recourse to, and the febrifuges set aside.

In some cases, circumstances may require the febrifuge remedies to be continued. Besides which, urgent symptoms of the brain or of some other important organ, may come on: then the appropriate remedies for their relief must be employed, to the exclusion of the lime juice and Hyoscyamus. Of cases of such complications, it is not my intention to speak, nor is it necessary here to lay down the treatment. The ordinary quantity of lime juice, for an adult, is four ounces during the day; this may be increased to six ounces. The most convenient and least objectionable mode of administering it, is as lemonade. The patient will evince no dislike to this drink. At bed time, from 4 to 6 grains of the extract of Hyoscyamus should be given.

During the period of secondary fever, I have employed a 10 grain dose of the mildest preparation of mercury, viz., Hydrargyum cum creta, in preference to calomel, in conjunction with the Hyoscyamus at bed time, followed in the morning by an ounce of Castor oil. In the absence of fever, or when it was

slight, two grains of the extract were given twice a day, and the night dose continued ; but when this quantity was found to affect the head, I omitted it until those symptoms were removed, and then gave it in a smaller quantity at bed time only.

The employment of Hyoscyamus so freely, is to allay the morbidly increased sensitiveness of the skin, secure to the patient a moderate degree of sleep, which is a matter of no small importance to him, as tending in a great measure to husband his strength, and ultimately of inducing a rapid falling off of the scabs.

Case I. A young East Indian woman ætatis 20, had fever of the continued type three days prior to the eruptions making their appearance. They appeared first in her face and soon after spread all over the body. The ordinary treatment with salines, and calomel and antimony, was had recourse to for the fever. With the appearance of the eruptions lime juice and Hyoscyamus were immediately employed and the other remedies omitted. The diet from the commencement of her illness, consisted of arrow-root conjee, plain bread, and weak tea without any milk.

The eruptions preserved their distinct form, moderate in number, large, and quite full at the period of maturation: on the 12th day (9th from the eruptions), scabbing commenced and fell off rapidly.

Throughout this case, there was no affection of the head, and the secondary fever was mild.

II. A young man, about 26 years of age, requested my attendance, and complained very much of the fever, which he said was now on him for the last 5 days, the following morning ushered in the eruptions, his forehead as well as his face was closely studded with bright red spots, the nature of which I was at once enabled to pronounce to be small pox. The favorable termination of this case was for some time doubted, as most alarming symptoms of the head soon after the appearance of the eruptions came on. His nights were generally sleepless, and he was very restless. High fever also was present, and his face was considerably swollen, eyelids closed, and inflammation of

the conjunctiva present. He was one mass of eruptions, so closely were they to each other, but *distinct*; only about his forehead did they coalese and form one large bleb; this I attribute mainly, to the skin of the part being left in a state of irritation, by a sinapism having been indiscreetly applied there by the patient for the relief of head-ache, previous to the eruptions shewing themselves. I had nothing to do with the application of the sinapism. I am of opinion, that the early use of the lime juice and Hyoscyamus treatment was mainly instrumental in preserving the distinctness of the pustules, and in causing a favorable termination to the case. The subject of this case is a member of our body. I subsequently treated two cases of small pox in the same manner, and with like results.

III. A European lad aged 12, had been ill with fever for four days, and during that period was treated as usual with salines, calomel and antimony. On the fourth day, the eruptions came out. This case, almost in every particular was similar to No. 2, was treated in precisely the same manner, and terminated favorably, without taking on the confluent type.

30th August 1853.

Native and other Prescriptions.—By Asst. Apothy. J. SHORTT.

WHITE OIL.

வெள்ளை யெண்ணை.

Take of Muriate of Mercury ℈i,

(Rassa-curpoorum.) ரசகற்பூரம்.

Breast milk a table spoonful.

Muriate of mercury to be soaked in the milk for an hour and the milk to be renewed seven times, then take out the muriate of mercury and put into a mortar to be well ground, after which mix with a quart of castor oil and bottle for use.

Dose ℥ss to ℥i. Purgative

,, ℈i. to ℥ss do for children,

℥ss taken daily for a fortnight acts as an alterative in secondary syphilis and other chronic cutaneous affections the patient being

kept on spoon diet. A bottle of oil prepared in the above manner is sold from 2 to 3 rupees by the native *Doctors*.

OIL OF SARSAPARILLA.

நன்னரிவேர்யெண்ணை.

Take of the shavings of fresh sarsaparilla *root* ℥ii.
,, Fresh cow's butter ... ... ℥iv.
Boil for a quarter of an hour in a proper vessel and strain.

Dose, from a tea to a desert-spoonful two or three times a day as a very good alterative.

Externally applied with a feather to the various eruptions that chiildren are subject to in Infancy.—It is an effectual cure in such cases.

PULV. SENNA CO.

நிலாவிரைசூரணம்.

Take of senna leaves powdered ... ... ℥i.
,, Cubebs, cummin seeds, and ginger each ʒii.
,, Candy sugar ... ... ℥ss.
Mix into a powder;—these different ingredients are to be previously cleaned and dried, then powdered and strained through a fine muslin cloth previous to mixing.

Dose from ʒi. to ʒiii. Laxative.
,, ʒiii. to ʒvi. Purgative.

Taken mixed with water, coffee, or tea. Is an effectual remedy in habitual costiveness, particularly in the aged; and acts on the bile, thus removing all bilious complaints, and may be also given to children in doses from ʒss to ʒi.

THE SENNA CHATNEY

தலாவிரைசட்நீ.

may be used prepared in the following manner.

Take of onions, tamarind pulp, and cocoanut each ʒii.
,, garlic ... ... ℈ii.
,, green ginger ... ... ℈ii.
,, chillies and senna leaves, each ... ... ʒi.
,, salt and coriander leaves, each ... ... ʒss.

These to be ground into chatney. Any one of these ingredients may be omitted, or the quantities increased to suit particular taste. If a purgative effect is desired the above quantity must be partaken. As a Laxative, one half; even in this experience is the best guide. The quantity suited to particular constitutions will produce the desired effect. It may be taken with food at dinner, or spread over a slice of bread. Acts also as a provocative to appetite if thus partaken: a very good way of over-coming habitual costiveness.

In certain cases, as in the aged, to overcome costiveness, and where there exists an aversion for medicine, or in children who are not able to distinguish it from a cup of tea, the senna tea is preferable, prepared in the following manner.

Take of senna leaves ... ... ʒxv.
,, ginger root sliced ... ... ʒi.
,, coriander seed (burned) ... ʒss.
,, boiling water one pint.

Infuse in a vessel for an hour and strain, to which add a sufficiency of milk and sugar to sweeten.

Dose.—A common tea-cupful for an adult, and half this quantity for a child, regulated according to age.

The following likewise is an excellent method for administering purgatives to children, which they readily partake from its agreeable taste. The trouble and difficulty experienced in giving opening medicines being readily overcome. viz.

THE SYRUP OF SENNA.

Take of senna leaves and manna each ʒxii.
,, fennel and coriander seed each ... ʒii.
,, white sugar ... ... ℥viii.
,, boiling water half a pint.

Macerate the senna leaves with the fennel and coriander seeds previously bruised, for 8 hours in boiling water. Strain the liquid, add the sugar and manna, and boil to proper consistence to form syrup.

Dose, from a tea to a table-spoonful.

Literature.

First Great Division of the Animal Kingdom.
The Vertebrate Animals.

The bodies and limbs of these being supported by a frame work composed of connected pieces moveable upon each other, they have the more precision and vigour in their movements: the solidity of this support permits of their attaining considerable size, and it is among them that the largest animals are found.

Their more concentrated nervous system, and the greater volume of its central portions, impart more energy and more stability to their sentiments, whence result superior intelligence and perfectibility.

Their bodies always consist of a head, trunk, and members.

There are certain genera in which the ribs of the trunk are hardly visible.

There are never more than two pairs of limbs; but sometime one or the other is wanting, or even both: their forms vary according to the movements which they have to execute. The anterior limbs may be organized as hands, feet, wings, or fins; the portesior as feet, or instruments for swimming.

The blood is always red, and appears to have a composition proper for sustaining that energy of sentiment and vigour of muscles, but in different degrees, which correspond to the amount of respiration, from which originates the subdivision of the vertebrate animals into four classes.

The external senses are always five in number, and reside in two eyes, two ears, two nostrils, the teguments of the tongue, and those of the body generally. Certian species, however, have the eyes obliterated.

The nerves reach the medulla, which, after crossing its filaments, expands to form the lobes of which the brain is composed, and terminates in the hemispheres; the volume of which corresponds to the amount of intelligence.

There are always two jaws, the principal motion of which is in the lower one, which rises and falls; the upper is oftentimes entirely fixed: both of them are almost always armed with teeth, excrescences of a peculiar nature, the chemical composition of which is very similar to that of bone, but which grows by layers and transudations; the en-

tire class, however, (that of birds,) has jaws invested with horn;* and the group of tortoises, in the class of reptiles, is in the same predicament.

In the three first classes of the vertebrate animals the organ of respiration consists of lungs, that is, an assemblage of cells into which air penetrates. In fishes only and in some reptiles while young, it consists of gills, or a series of laminæ between which water passes.

In all the vertebrate animals, the blood which furnishes the liver with the materials of the bile is venous blood, which has circulated partly in the parietes of the intestines and partly in a peculiar body named the *spleen*, and which after being united in a trunk called the *vena porta*, is again subdivided at the liver.

Vertebrate Animals.

All these animals have a particular secretion, which is that of *urine*, and which is elaborated in two large glands attached to the sides of the spine of the back, and called *kidneys*: the liquid which these glands secrete accumulates most commonly in a reservoir named the *bladder*.

The *sexes* are separate, and the female has always one or two ovaries, from which the eggs are detached at the instant of conception. The male fecundates them with the seminal fluid; but the mode varies greatly. In most of the genera of the three first classes, it requires an intromission of the fluid; in some reptiles, and in most of the fishes it takes place after the exit of the eggs.

Subdivision of the Vertebrate animals into four classes.

We have seen to what extent vertebrate animals resemble each other: they present, however, four great subdivisions or classes, characterized by the kind or power of their movements, which depend themselves on the quantity of respiration, inasmuch as it is from this respiration that the muscular fibres derive the energy of their irritability.

The quantity of respiration depends on two agents: the relative quantity of blood, and the relative amount of [free] oxygen which exists in the ambient fluid.

The organs of the circulation may be double, so that all the blood which is brought back from the various parts of the body by the veins, is forced to circulate through the respiratory organ before returning by the arteries; or they may be simple, so that a portion only of the

* Mr. Jeoffroy St. Hilaire has described a structure in the bill of birds which presents some approach to a dentary system.

blood is obliged to pass through the respiratory organ, the remainder returning to the body without having been subjected to respiration.

The latter is the case with reptiles.

Fishes have a double circulation, but their organ of respiration is formed to execute its function through the medium of water; and their blood is only acted upon by that small portion of oxygen which is dissolved or mingled in water; so that the quantity of their respiration is, perhaps, less than that of reptiles.

In mammalians, the circulation is double, and the ærial respiration simple, that is, it is performed in the lungs only: their quantity of respiration is, therefore, superior to that of reptiles, on account of the form of their respiratory organ, and to that of fishes, from the nature of their surrounding medium.

But the quantity of respiration in birds is even superior to that of quadrupeds, since they have not only a double circulation and an ærial respiration but also respire by many other cavities besides the lungs, the air penetrating throughout their bodies, and bathing the branches of the aorta and of the pulmonary artery.

Herein result the four kinds of progression to which the four classes of the vertebrate animals are particularly destined. The quadrupeds, in which the quantity of respiration is moderate, are generally formed to walk and run with precision and vigour; the birds, in which it is greater, have the muscular energy and lightness necessary for flight; the reptiles, where it is diminished, are condemned to creep, and many of them pass a portion of their life in a state of torpor; the fishes, in fine, to execute their movements, require, to be supported in a fluid specifically almost as heavy as themselves.

All the circumstances of organization proper to these four classes, and especially those which refer to motion and the external senses, have a necessary relation with these essential characters.

The class of mammalians, however, has peculiar characters in its viviparous mode of generation, in the manner in which the fœtus is nourished in the womb by means of the placenta, and in the mammæ by which they suckle their young.

The other classes are, on the contrary, oviparous; and if we place them together, in opposition to the first, there will be perceived numerous resemblances which announce, on their part, a special plan of organization, subordinate to the great general plan of all the vertebrates.

(To be continued.)

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"I hold every man a debtor to his profession from the which as men doe seek to receive countenance and profit, so ought they of duty to endeavour themselves by way of amends to be a help thereunto."—Lord Bacon.

Selections.

Review *of Our Problems. An Essay to Facilitate United Labours for Rational Medicine.* By Dr. F. W. Beneke.

Manifold are the concussions which medical science has experienced in the short time of the last half-century; all the errors created by an imperfect generalization, as depicted in the history of medicine, have once more appeared before our eyes in rapid succession. Even now some of them have not yet vanished from the scene; but the conviction more and more is gaining power, that the only hope for the continual and lasting progress of medicine lies in the patient and energetic pursuit of the same method to which the so-called exact sciences of nature owe their flourishing state; we mean the way of sober, unprejudiced observation, and strictly logical induction. Not insignificant is the profit which has already accrued from the exertions of those who have clearly recognised the correctness of this view. No one can, however, help feeling, that the subject before us is enormous in comparison with the limited power of a single being. Many are certainly deterred from entering upon it by seeing how much is wanted, how little can be done, when the observer stands alone; where to begin, and how to begin, is unclear to not a few, who feel a real desire to work, and who are also able enough to give aid in the investigation of many important points.

Great is the progress made in anatomy and physiology, in physical diagnosis and pathological anatomy; but with much reason, Beneke remarks that we have, as yet, gained very little through these collateral sciences for the rational *treatment* of disease, which always must be the main end of our labour. The cause of this sad truth he sees in the circumstance, that our materia medica and our therapeutics are based, to too great an extent, on rude empiricism, uncontrolled by physiologico-chemical experiments, or by pathologico-chemical experience. To remedy this deficiency, Beneke urges the necessity of co-operation according to a certain plan.

If we look at medical and medico-chemical literature, we find that a great number of men, and of able men too, have spent much of their time in pathologico-chemical researches, without at all promoting the progress of science. The principal cause of failure in these investigations is, that they have been working without a *guiding idea*. In order to avoid this, Beneke, in the first instance, developes his views on the origin and nature of disease in general, and on the ways in which the metamorphosis of material may become anomalous. Our limited space prevents us from giving in detail his idea concerning the essential nature of health and disease; it may be sufficient to state here, that disease is considered as originating either in disorders of the alimentary material, or in one or other of the agencies operating upon this (the organs of the body and the atmospheric air). As the abnormal changes in the constituents of the food and of the blood (the product of the food) form the more frequent source of disease, Beneke gives a brief sketch of the normal metamorphosis of aliments, under their different heads of azotized, non-azotized, and inorganic. The normal course of the metamorphosis of these three groups is indispensable for perfect health; it may depart from the standard by being either *retarded* or *accelerated*;—*retarded*, when the single constituents do not run through the complete series of changes; *accelerated*, when the metamorphosis takes place too rapidly. As the series of changes of the azotized components is greater than that of the non-azotized, Beneke concludes that the latter are sooner decomposed than the former, and proposes, as the first *law of dependency* (*Abhängigkeits-Gesetz*) for the metamorphosis of matter, that, according to the larger or smaller quantity of the non-azotized constituents (entering the blood), the metamorphosis of the azotized is more or less rapid. Although we may admit that this is the case in general, we cannot agree with Beneke in thinking that it always must be so; the circumstance, at least, that the series of changes in the azotized nutriment is the longer one, cannot be a sufficient argument to us, as a longer series may be finished, under certain conditions, more rapidly than a shorter one.

As a second law of dependence, Beneke proposes, "that the metamorphosis of the azotized and non-azotized alimentary material is to a certain extent, dependent on the quality and quantity of the inorganic material."

After these preliminary remarks, our author proceeds to the consideration of the question:—"Of what nature are the abnormal conditions of the food? What is the nature of the morbid changes of the blood resulting from them, and which is the connexion between this and the disease of the whole organism?"

Although food may deviate from the normal in *quantity* and in *quality*, yet the quantitative disorders are the most frequently met with, the more so, as those generally considered as qualitative are in reality quantitative, consisting in the presence of a *plus* or *minus* of one or several of the normal constituents. Guided by the idea, that from the disproportion of one group of the alimentary materials, at first a

disorder in the metamorphosis of the *corresponding* group in the blood must ensue, and later only in the *other* groups, Beneke divides these disorders into *direct*, *indirect*, and *complicated* ones. If the quantity of the azotized class exceeds the measure which can be fully digested and carried through the normal series of changes, *direct* disorder in the metamorphosis of the meterials of this class results, which will show itself, in the beginning, in the abnormity of its ultimate products of decomposition, and later only in its earlier products. A transitory increase of the ingesta will be the cause of a transitory augmentation of urea and lithic acid in the urine; if the increase is continued for a long time, and is considerable, not only urea and lithic acid, but also oxalic acid, will be excreted in large quantity; and doubtless, also, the azotized constituents of the bile, and the proportion of the albuminates in the blood, will be augmented. In a similar manner, by the use of too large a quantity of the non-azotized and inorganic meterials, the metamorphosis of these classes may become disturbed.

Indirect Beneke calls those disorders in the metamorphosis of one group, which are not effected by disproportion in the ingestion of material belonging to the same, but of the materials belonging to another group. If, for instance, the quantity of azotized substance taken within a certain time be not above the normal, but the quantity of the non-azotized be increased, then, according to the first law of dependence, the disorder would show itself in the series of the azotized material, and the same form of disease might result as from direct augmentation in the ingestion of the azotized substances. Beneke considers these retardations of the azotized constituents of the blood as essential in the development of scrofulosis, tuberculosis, and those conditions which are attended by oxaluria; in their highest degree they may cause the appearance of sugar in the urine, which, in such cases, probably has its origin in the azotized elements. Another instance of indirect disorder is found in the fact, that after the habitual use of soda the symptoms of acidity in the stomach and intestinal canal are increased, as well as the proportion of mineral acids excreted in the urine; which phenomena can only be interpreted by a change in the metamorphosis of the azotized and non-azotized organic material of food, effected by the disorder in the ingestion of inorganic materials. The results which Dr. Parkes has gained from his researches on the action of liquor potassæ illustrate, it may be, the same order of facts.

By the coincidence of direct and indirect disorders in the metamorphosis of the single groups, the *complicated* disorders result, which are in reality the most frequent.

Although it is frequently difficult to trace the direct, indirect, and complicated disorders, yet they form in many instances only the first link of a long chain of consecutive conditions, of which the one results from the other, and frequently remains in reciprocal connexion with it. As an instance of a more simple kind, Beneke mentions the connexion between the abnormal production (or we would rather say, abnormal accumulation and excretion) of oxalic acid and the impaired

growth of cells. His view is, that by the directly or indirectly retarded metamorphosis of the azotized substances, the quantity of oxalic acid in the system becomes increased; phosphate of lime being easily dissolved in a solution of oxalic acid, the presence of the latter in an augmented proportion tends of course to deprive the system of a certain quantity of the phosphate. This being further essential to the formation of cells, a deficiency of the latter function must result as a third link in the chain; emaciation is the necessary consequence, originating, in this case, in an abnormal accumulation of the azotized ingredients of the blood.

Although we do not yet think ourselves entitled to consider the morbid increase of oxalic acid in the human organism as a product merely of the azotized substances to the exclusion of the non-azotized; and although we cannot admit, in these morbid states, an abnormally increased production, but only the presence in an increased proportion (probably accumulation in consequence of retarded metomorphosis); yet we highly value the manner in which Beneke investigates the origin of disease. If we look only at the dietetical indications resulting from it, without entering into the medicinal treatment, we see at once that the alimentary material must be diminished to such an extent, that all the ingredients can run through the normal series of metamorphosis; we cannot doubt, that by increasing the quantity of the so-called strengthening food, a practice to which patient and medical man not rarely resort, the root of the disease is nourished, and the emaciation must necessarily increase.

After having thus alluded to the abnormalities in the mixture of the blood which may arise from the alimentary material, as the source of the blood, and which he calls therefore primary disorders, Beneke passes to the consideration of the *aggressive agencies*—i. e., the agencies causing changes in the blood—namely, the *atmospheric air* and the *organs of the body*. The former of these acts only upon the blood, as the product of the alimentary material—the latter as well on the blood as on the nutriments.

Without further entering into the contents of this chapter, we may only say, that here again the disorder may be quantitative or qualitative. By the diminished proportion of oxygen brought in contact with the blood, the metamorphosis of the latter must be retarded; disorders must arise, similar to those which are effected by too large a quantity of food. On the other side, by an abnormal introduction (absolutely or relatively) of oxygen, the change of matter must be accelerated.

In considering the action of the *living organs*, their *structure* and *function* must be always considered simultaneously. Dr. Beneke, with much reason, particularly dwells on the importance of the influence of the *nervous system* in the operation of the organs on the alimentary material and on the blood, and in the process of metamorphosis in general—a circumstance which we frequently find neglected in physiological chemistry. The specific agency of the living organ—as the effect of the anatomical structure, modified by the presence of

nerves, and their connexion with the nervous centres—Beneke calls *typical energy*. This is, however, not to be understood as if he were admitting a so-called vital power independent of the laws of inorganic nature, but he uses it merely as a term for that as yet inextricable complexity of various factors. The "*typical energy*" of an organ might therefore be shortly interpreted as the product of all the physico-chemical processes under the control of the nervous system of that organ. We can never be permitted to take only into account the mechanical construction of an organ as a merely physical apparatus, but we must always look at the fact that it is endowed with nerves and connected with the nervous centres. Whatever excites or depresses the latter must exercise an exciting or depressing influence on the metamorphosis of the organic matter. Hence the striking influence of joy or grief on the physical state in general. We have twice had opportunities of observing the correctness of Dr. Beneke's remark, that under continued depressing mental influences oxalic-acid crystals appeared in the urine constantly and in very large number, and that at the same time the quantity of lithic acid became increased, while no change had taken place in the manner of living. In another subject, we almost daily examined the urine during seven weeks of great excitement and intense mental activity : the quantity of twenty-four hours was not changed ; the colour was clearer ; the specific gravity, in general 1026—1028, had decreased to 1022—1024 ; not a single crystal of oxalate of lime could be detected under the microscope, while they were seen almost aways in a small number, as well before as after that period ; the diet had not been altered ; no change had taken place in the amount of exercise.

After shortly alluding to another source of disease, in the disorder of the *egesta* (through the skin, the kidneys, the liver), Beneke advances to the proposition and discussion of the *subjects for inquiry*.

Whatever may be the case we have to deal with, we shall always have to answer the questions : What is the nature of the disease ? How did it arise, and how may it be removed ? To these questions, however, we cannot answer, without knowing what is the state of health, and what are the means of preserving it. Our knowledge on these points is, as yet, so limited, that they must be placed among the principal subjects of inquiry. If we may say that health exists when the quantity and quality of the ingesta and egesta are normal, then we see arising immediately the following points for investigation :

"1. To find the standard measure for the quantity and quality of the ingesta of twenty-four hours.

"2. To find the standard measure for the egesta of twenty-four hours ; for the ultimate bodies of decomposition of the different series of metamorphosis.

"3. To find the standard measure for the atmospheric influences.

"4. To find the standard measure of the effect of single organs, and of the whole living organism on the ingesta and egesta."

Many points connected with these questions are still in great obscurity, and an exact solution of the problems is as yet impossible ; much advantage may, however, be gained already now for scientific as well as practical medicine, by an approximative investigation of the

normal quantity of the ingesta and egesta, of their dependence on the difference in the atmospheric conditions, and in the state of the living organism.

The author, therefore, draws our attention, with reason, to these points, as being the principal desiderata for pathology and therapeutics. As the best way to form a correct idea of the normal measure of the ingesta, Beneke advises us to collect as many accounts as possible of the quantity and quality of food consumed in twenty-four hours by apparently healthy persons, in the greatest possible number, in different ages, under different atmospheric influences, &c. Much information would be certainly gained by such observations, but we are inclined to think, that we should gain more by the accurate investigation of the process of nutrition and metamorphosis of organic matter in animals, according to the manner shown to us in the admirable work of Drs. Bidder and Schmidt * The whole amount of the ingesta and egesta, in the same animal, must be examined during one period, when it is allowed to take as much food as it likes ; during another period, when it takes only a limited quantity and special quality ; then all the principal excretions (kidneys, lungs, intestines) during a third period, that of starvation ; the gain or loss of weight is carefully to be marked on every day. Accurate notes are to be taken of the atmospheric influences, of the activity of the animal, &c. &c. Manifold might be the variations in these experiments; food might be withdrawn and water permitted, according to the desire of the animal ; solid food without any fluid ; mere vegetable or mere animal food ; food without large quantities of chloride of sodium, of earthy phosphates, &c. ; food as much as possible deprived of the inorganic constituents, &c. &c. By this method we should find at least how much substance is consumed and decomposed in a starving animal, of a certain species, and of a certain weight, under certain atmospheric influences ;—we should further learn, through the quantity of nitrogen contained in the urine and in the alvine excretions, through that of the carbonic acid and water, the proportion of the decomposed albuminous and fatty substance ; we should perceive how much food of a certain quality is necessary for keeping the same animal, under certain circumstances, in the same state; and what is the effect of an increase of food, according to the desire of the animal, on the weight, on the excretions, on quickness of movements, &c.—similar observations, although they would seldom have the same accuracy, might be made also on ourselves.

After having shown the necessity of enlarging our knowledge concerning the state of health, Beneke proceeds to the duty of giving the history of cases of disease, which he divides into four parts :

" I. The account of the *development of the disease*—given in so accurate a manner, that, by an accumulation of many cases, *the ætiology of certain classes of disease*, principally of the so-called dyscrasic states of the blood would become more elucidated.

* Die Verdauungssaefte und der Stoffwechsel. Milan und Leipzig, 1852.

"II. Description of the *present state*, in which not only the physical, but also the physiologico-chemical symptoms must be included.

"III. *Plan of treatment*, according to rational and empirical principles, from which is to arise the *science of dietetics and pharmacodynamics*, based on *physiologico-chemical investigations* or on *undeniable empirical facts*.

"IV. *Carefully given daily records*, not only of the apparent general course of the disease, but also of all the external conditions, of all the ingesta and principal egesta, as well in quantity as in quality."

I. In the history of the development of the disease, Beneke divides the influences which have acted on the patient into three classes: (a.) *the more remote*; (b.) *the less remote*; (c.) *the proximate influences*.

(a.) *The more remote* influences concern the parents and grand-parents, their occupation, manner of living, the atmospheric influences under which they had been, the diseases they have suffered from, &c. &c. We agree with Beneke, in attributing much more importance to this part of the history of diseases than it is generally considered to deserve. Not only in the so-called hereditary diseases ought we accurately to examine into the state of health of the parents, but in every single case; we must try to find out why in one child of the same parents the tuberculous, in the other one the gouty, diathesis is developed, while a third child may enjoy so-called full health—what may be the state of children whose father was suffering at the time of procreation from syphilitic disease of the bones, while the mother was of a gouty disposition or affected with osteomalacia?—what was the state of health, the manner of living, the residence, of non-tuberculous parents whose children die of tuberculous phthisis, &c.?

(b.) The period of the *less remote influences* commences with the birth. The infantile management, the food and treatment at different periods of life, the former and present residence, the manner of living as well physical as psychical, the previous diseases the patient has been suffering from, should be taken into consideration. We need not dwell on these points; they are in a similar manner treated of in 'What to Observe at the Bedside, and after Death, in Medical cases.'* We must mention, however, that Dr. Beneke does not forget to allude, under this head, to the very interesting subject, as yet only little investigated, in how far we are entitled to judge from the presence of a certain group of diseases on a certain state of the blood and of the whole organism—of a certain crasis, as Beneke expresses himself, and from this, on the absence of another crasis.

As a single instance, he mentions that those suffering from oxalic-acid diathesis are not liable to typhus fever; that we may conclude, therefore, from the previous occurrence of typhus, on the absence of the first-named diathesis in the same period. The great importance of the establishment of many facts of this kind is striking enough; it would throw light on the essential nature of the different groups of diseases. It is a subject we must certainly aim at; but the history of medicine has also taught us, how careful we ought to be in forming a conclusion, lest it may prove fallacious. Although we do not think

* London, 1853. By the London Medical Society of Observation.

ourselves entitled to doubt the correctness of the instance adduced by Beneke, we are as yet unable to corroborate it, and we may refer to it to show the difficulty of establishing such a fact. Three times we have had an opportunity of watching, during an acute affection (twice of acute rheumatism, and once of severe angina tonsillaris), patients whose urine usually exhibited a large number of crystals of oxalate of lime. In all these three cases, during the whole of the acute attack and during the time of convalescence, not a single crystal of oxalate of lime could be detected; in two of the cases, they appeared again after some weeks; in the third case, no examination was afterwards made. Whether the disappearance of the oxalic acid during the acute affection depended on the increased aggression of the atmospheric air and living organs on the blood, or on the diminished ingestion of material during the time of pyrexia, or on both causes, is of no importance to the present question; but these observations show, that it would be erroneous to conclude, from the absence of oxalic acid during the course of acute diseases, that there is a want of susceptibility for acute disease in those suffering from the so-called oxalic-acid diathesis.

(c.) The duty of describing the *proximate* influences or the exciting cause of the disease is a comparatively easy one after the investigation of the circumstances creating the disposition. We must in this manner gradually find the cause, why the same influence in one case produces pneumonia or bronchitis; in another, acute rheumatism; in a third, diarrhæa; in a fourth, ophthalmia; and why a fifth and sixth remain unaffected by it.

II. The general outlines which Beneke gives of the description of the *present state*, and of the value which he attributes to each symptom, fully show, that he is equally practised in the *physical* and in the *physiologico-chemical examination*. Every physical symptom must be carefully observed; this is to be done, however, not merely for the diagnosis of a physical change, but it must also help us in the solution of the principal question—the cognition of the forming material of the organism, i. e., the blood. The observation of those phenomena, from which we may judge of the amount of the typical energy of each organ, and of the whole organism, appears to him of great importance.

Concerning the *physiologico-chemical examination*, Beneke considers the analysis of the blood of less importance than the accurate examination of the process of metamorphosis of the quantity and quality of the ingesta and egesta. Such an examination of the present state, combined with the previous history, must lead to a more complete diagnosis than is generally made, and must immediately guide us to a rational plan of treatment. In order to make Beneke's views better understood, we may be permitted to quote the outlines of a case described in the shortest manner. The patient is a young man, aged 22 years, who has suffered for the last three days from pain and slight swelling of the joints of the hands and knees. Knowing this, Beneke inquires first for the more remote, then for the less remote, and then for the proximate influences. The patient is the son of a consumptive mother,

who died eighteen years ago; his father is still alive, and is a healthy man. He was suckled by his mother. After being weaned, he had milk-and-water with bread for breakfast and supper; and after the 15th year, coffee, with bread-and-butter. Has always enjoyed his dinner; seldom missed meat, but has been used to eat, also, many potatoes and much rye-bread. He generally took much salt with his food; drank soft water; and after his 15th year, he had the allowance of a quart of small beer daily. He had been always very fond of sugar and sweet things. In his earlier years, the patient lived in the country (north of Germany); later, he was employed in a sugar-house in London, where he was frequently exposed to intense heat, producing profuse perspiration. Has never been in poor circumstances. When a child, he began late to walk; has since suffered much from toothache (principally from the 10th to the 15th year); has at present eight decayed teeth. When a child, he had also slight swellings in the neck. Has not been affected with typhus or ague; but has had measles (without epidemic cause) in the 6th year. As a boy, he also suffered frequently from epistaxis. On one of the last days before the outbreak of the disease, the patient took very large meals; and on the day previous to the appearance of the affection of the joints, he was exposed to a noxious cause likely to give origin to cold (working in a cold draught of air, with the upper part of the body sparingly covered). The patient is 22 years old, weighs (without clothes) 140 pounds, measures 5ft. 4in. His body is moderately developed; muscles rather lax; bones thin; colour chlorotic; hair light; iris bluish gray; conjunctiva pure, slightly-bluish white. Glands of the neck slightly but not visibly swollen. A few spots of acne and ecthyma on the front and on the back of the trunk. Physiognomy in no respect characteristic; expression cheerful. During the consultation, patient appears anxious; rather hasty in his answers; the extended arm is slightly trembling. The pulse beats 110 times in the beginning, only 86 times towards the end, of the visit; is not very elastic, feels soft, and of middle size. The patient sleeps during seven or eight hours, but is awoke by every little noise. The physical examination exhibits: formation and motion (Sibson's chest-measurer) of the thorax normal, size and situation of heart normal, slight murmur with the first sound at the base (anæmic murmur is heard also in a slight degree in the vena jugular dextr.); diameter of the liver rather increased; sound of percussion perfectly dull. The tongue is red, with a thin, bluish-white covering on the surface. Appetite not altogether absent; taste acid after meals. The wrist-joints are slightly swollen, their temperature is increased, they are tender and painful. The quantity of carbonic acid expired is not measured. The perspiration constantly covering the skin for the last two days has a strongly acid reaction, and a faint smell of acetic acid; saliva slightly acid. Urine and fæces at the first visit not seen; during the following twenty-four hours, about 8 ounces of fæces, of moderate consistency and light-brown colour. Quantity of urine, 34 ounces, specific gravity = 1030; acidity (ascertained by neutralization) = + 48 (+ 15—20 being the standard in health); high gold-

yellow colour ; on the bottom of the clear fluid, a sediment of lithates (soluble by warming), and some crystals of uric acid and of oxalate of lime (miscroscope) ; the quantity of urea (nitrate of) does not exceed the average ; but that of lithic acid, sulphuric acid, and the earthy phosphates, is increased ; no sugar is detected, but by boiling and nitric acid some albumen is precipitated. Patient has taken, during the last twenty-four hours : water, 48 oz. ; milk, 10 oz, ; gruel and barley-water, 10 oz. ; bread, 10 oz. ; butter, $\frac{3}{4}$ oz. ; mixtur. gummosæ, 6 oz. ; with one drachm of nitrate of potash.

From the previous history, and the examination of the present state, Beneke concludes, in this case, on the presence of a complicated disorder of the blood. The scrofulous dyscrasia which the patient inherited is connected with an (indirectly) retarded metamorphosis of the nitrogenized constituents of the blood, and in the former diet of the patient several things were present to promote this dyscrasia. The circumstance of his having been late in beginning to walk, the insufficient development of the bones, the morbid condition of the teeth, and the flaccidity of the muscles, all point to an abnormal loss of earthy phosphates, and therefore, also, according to Beneke's views, to an abnormal production of oxalic acid. The result of the examination of the "status præsens" shows an increased expenditure of nitrogenized material ; the presence of albumen in the urine ; an absolute increase of lithic acid ; no absolute increase of urea, as only a part of the lithic acid reaches that stage of decomposition. The ingesta being diminished, we have reason to conclude that the proportion of the albuminates of the blood is abnormally augmented. The high colour of the urine, especially if present for a long period, indicates an impaired function of the liver. The quantity of sulphuric acid in the urine being only moderately increased, corresponds to only a slight degree of pyrexia and increase of change of matter. (Beneke holds the opinion, that the quantity of sulphuric acid in the urine, provided no combination of sulphur have been taken except in the food, is proportional to the intensity of the metamorphosis of matter.) The high degree of acidity of the urine principally depending on the acid phosphates, is frequently caused by an increase of the azotized components in the blood, and is, also, often a sign of the presence of a morbid excess of soda in the blood,

From all this we may conclude, with a high degree of probability, on an increase of the azotized materials of the blood ; and, from the diet, we must consider this increase as an indirect one, occasioned by retarded metamorphosis of the albuminates. Concerning the inorganic constituents, we may deduce, from the acidity of the perspiration and of the saliva, and from the acid taste, an augmented production of organic acid, by which the presence of an abnormally great quantity of soda in the blood becomes very probable ; the large proportion of salt previously taken, and the impaired expenditure of soda through the liver, make this inference still more plausible. The increased quantity

of earthy phosphates points to the pathological production of oxalic acid, which is afterwards proved by the microscope.

Our space does not permit us to give the whole semeiology of the case, with the diagnosis and the therapeutical indications founded on it. We will only add, that Beneke is not contented with the name attributed to such an affection, '*articular rheumatism*,' as signifying only a single group of the morbid symptoms; but his diagnosis would be: *chronic disease of the blood at present augmented, (increase of albuminates and alkaline bases, diminution of earthy phosphates;) articular rheumatism; hyperæmia of the liver; anœmia.*

We must bear in mind, however, that Beneke intends to give by this only the outlines of a case as it may be taken by men much occupied; and he wishes merely to show how the process of disease is to be observed, and how the physiologico-chemical examination may help in the diagnosis and treatment. He has given a more elaborate case in an appendix to this work. It may be remarked, also, that in calling the adduced case of rheumatic affection a disease of the blood, Beneke must not be understood as if he was considering the ultimate cause of the disease to lie merely in the blood; in other parts of the same work he has sufficiently shown that he is always aware of the intimate connexion between the solids and the blood.

There are some expressions in the above case which appear to state as facts what are, as yet, merely suppositions; but this we may attribute to the tendency of a concise style in writing. For instance, we meet several times with "abnormally increased production of oxalic acid," whereas the increased quantity of oxalic acid in the urine is no proof of its absolutely increased production, but only of the formation and excretion of some oxalate which has not been further transformed. "An increased production of organic acid" is another instance of the expressions we allude to.

Concerning the treatment, the diagnosis formed in the manner above described leads Beneke to the following indications:

"1. Diminution of the nitrogenized material of the blood (small venesections of about six to eight ounces, and exclusion of nitrogenized food); 2. Acceleration of the metamorphosis of the remaining nitrogenized material (increase of diuresis simply by drinking more water, and moderate doses of salts of potash, particularly the acetate)."

He of course carefully avoids repeated or larger venesections; he does not continue the low diet too long, nor the salts with an alkaline basis, especially soda, which already exists in excess; he does not resort to frequent purgatives, by which, according to *Schmidt's* excellent investigations (Cholera, &c.), the albuminates of the blood are augmented. After having subdued the acute attack, Beneke would not permit too much nitrogenized food, and would warn his patient against taking those non-nitrogenized substances, by which the metamorphosis of the nitrogenized ones is most retarded (sugar, starch, &c.); he would combat the increase of soda, and the diminution of red blood-globules, by mineral acids, iron, &c.

III. In the determination of the *therapeutical indications* in general, Beneke reminds us again to look for the origin of disease either in disorders of food and its product the blood, or in some of the aggressive agencies.

As the organism cannot be retained in the state of health without a certain supply of alimentary material in the proper quantity and quality, the establishment of a system of *rational dietetics* must be considered as one of the *principal subjects* for inquiry. It must comprise :

a. The consideration of all the articles of food ;

b. Of the other influences of life, which all have a direct or indirect influence on the metamorphoses of the alimentary material.

We must therefore form tables showing the exact composition of all articles of food—the quantity of water, the quantity and quality of nitrogenized and non-nitrogenized, as well as of the inorganic constituents. Much has been done already, particularly as regards the organic ingredients ; but much remains to be fulfilled, and most in regard to the quality of the inorganic ones, which are of the greatest influence on the nutrition of the organism. We must further learn to fix what is the *proper quantity and quality for each individual case.* In doing so it is essential never to omit taking into consideration weight, measure, age, occupation, residence, with atmospheric influences, and principally also the typical power of the nervous system. It is doubtless the case that in a person measuring six feet, and weighing 170 pounds, more matter is decomposed within twenty-four hours, than in another only five feet high, and weighing 120 pounds, whose other conditions are, however, the same as those of the former subject. It is ascertained that two persons of the same height and weight, of whom the one is low-spirited and slow, while the other is cheerful, active, and quick in his motions, require different quantities of food, as the metamorphosis of matter must be slower in the former than it is in the latter. Every influence, whether psychical or physical, by which the act of respiration is promoted, must increase the metamorphosis of matter, and must not be forgotten in regulating the diet. Concerning the *quality*, we must likely choose it according to each individual case. We must learn at first, whether there is an acceleration or a retardation in the metamorphosis of a certain class of alimentary materials—in case of retardation, whether a direct or an indirect one—whether there is a plus or minus of phosphates, a plus or minus of soda, &c. &c. ; and according to the result of these investigations we must prescribe the diet.

As another subject for inquiry, Beneke proposes the investigation of the action of those substances the use of which is not necessary for the maintenance of health, which may therefore be looked at separately from the nutriments in the proper sense of the word—as coffee, tea, spices, wine, spirits, &c. &c. These *articles of relish (Genussmittel)* certainly exercise an important influence on the digestion and on the metamorphosis of matter. Researches of some value have been

made already by Dr. Boecker, of Bonn,* according to which most of these so-called excitants do not accelerate, but retard, the metamorphosis.

For the establishment of rational *therapeutic treatment,* besides the knowledge of the nature of the disease or of what is to be remedied, it is necessary to know the action of the remedies. To achieve this, Beneke seems to put little confidence in the statistical method as recommended by Louis and Wunderlich, but entertains much hope in the *physiologico-chemical experiment performed on the most healthy individuals.* It would lead too far to expose here the preferences and deficiences of the one method and the other, but we must think the combination of both of them indispensable for the formation of the rational pharmacology.

IV. We need scarcely remark on the necessity of not only elaborate, but frequent records of all the symptoms in each case, the condition of all the egesta, and the kind of ingesta.

After having thus given the outlines of what is wanted for the promotion of a rational system of pathology and therapeutics, Beneke briefly, but with much clearness, alludes to the manner in which the different observations and examinations are to be conducted. It cannot, of course, be required from a much-occupied medical man, that he carefully examines and records all the different points of importance; but most of us might have always one or two cases in hand, of which we could make out the history of the development of the disease; in which we could form, besides the physical, also the physiologico-chemical diagnosis, in which we could daily note the progress of the physical symptoms; the quantity and quality of the ingesta, the atmospheric influences, the quantity of the urine, its physical quality, its specific gravity, reaction, its degree of acidity or alkalescence; the approximative quantity of lithic acid and urea; of earthy phosphates, of sulphuric acid and of oxalate of lime; the presence or absence of sugar; the quantity and quality of the alvine evacuations; that of the perspiration, and also the reaction of the saliva, if possible, at different times of the day.

We must not forget to mention that Beneke gives very complete schemes for the examination by which the development of the disease and the *status præsens* may be investigated; he gives very practical diagrams for taking record of the most important points in the course of the disease, and another scheme for the *post-mortem* examination. He proposes also the outlines of a useful plan, according to which the chemical examinations may be performed. We will, however, at present, not dwell any longer on these points, as we hope to be able to return to them ere long, when analyzing the plan for the physical as well as physiologico-chemical examination which is to be adopted by the Society for Clinical Observation in Germany.

* Beitrage zur Heilkunde.

True it is that many of the most important points cannot be easily observed in private practice, but doubly great is therefore the duty which devolves on the medical staff of hospitals. No hospital ought to be without a laboratory, and without the instruments necessary for accurate examination.

But the more we enter into the field of scientific examination for the promotion of rational medicine, the more we must see how much is to be done, and how little a single individual can do; with a full conviction of this fact, our author has urgently invited his colleagues, as well in Germany as abroad, to unite with him, to distribute the labour, and to work according to a certain plan. And we are happy to say that his exhortation has been efficient, as at the last *Versammlung deutscher Naturforscher und Aerzte*, in Wiesbaden, in September, 1852, by the co-operation of Professor Vogel, of Giessen, and Professor H. Nasse, of Marburg, a Society for Clinical observation, or, verbally translating the rather long German title, "A Society for United Labours towards the Promotion of Scientific Medicine," has been formed, which counts already among its members many well-known German, and some English names.—*British and Foreign Medico-Chirurgical Review for July*, 1853.

Lectures on the Diseases of Women—By W. Tyler Smith, M. D.

The Pathology and Treatment of Leucorrhœa, based on the Microscopical Anatomy of the Os and Cervix Uteri: Relations of Vaginal or Epithelial Leucorrhœa to Gonorrhœa in the Female, to Urethritis in the Male, and also to the Ophthalmia of new-born Infants.

Cases are sometimes met with in practice in which all the symptoms of Gonorrhœa occur in the male after intercourse with a woman apparently affected with Leucorrhœa only. No doubt in some of these cases gonorrhœa may have existed in the female, but they occur so often as to leave, I think, little question that under certain circumstances a spontaneous leucorrhœa, arising independently of sexual intercourse, may produce urethritis, and inflammation of the glans penis in the male. The urethritis thus caused can scarcely, if at all, be distinguished from gonorrhœa, the result of infection. What are the circumstances under which the female discharges become capable of exciting acute disease in the male organs? I do not know that this subject has ever been investigated with precision, and it is one surrounded by many difficulties. There has been a common tendency to refer to purulent discharges from the os and cervix uteri as the source of irritation in such cases; but cases are met with in which, as in the progress of cancer, for instance, the discharges are apparently more irritating than under any ordinary circumstances, yet intercourse may continue to a late period of the disease without exciting any irritation in the male. In some case of painless, or almost painless, cancer uteri, women apply to hospitals with the os and cervix uteria far advanced in ulceration, who have been living with their husbands without any

suspicion of being the subjects of serious disease. If purulent or simply irritating discharges from the uterus were the cause of the affection simulating gonorrhœa in the male, we might imagine it would be found in such cases as those now referred to. Again, in cases of extensive disease of the os and cervix uteri, of a non-malignant character, where profuse purulent discharge exists, urethral disorder in the male is rarely produced. It has been remarked that the mischief generally arises in cases of leucorrhœa which do not exhibit any unusual severity, and it has therefore been supposed by many that it must depend, not so much upon the female discharges, as on some peculiar susceptibility in men who become affected in this manner. It appears to me that in accounting for these phenomena the condition of the os and cervix uteri has been too generally considered, instead of the state of the Vagina, and that we must look to the vagina for their true explanation.

It is well known that the great modern authority, M. Ricord, is of opinion that gonorrhœa is simply an inflammatory affection, and that it occurs quite independently of any specific source of infection. He believes that when it arises after sexual intercourse, no specific poison exists, but that the same identical affection of the urethra and glans penis may be produced by mechanical and other injury of these parts. I need not say that it will favour the views of M. Ricord if we can trace any similiarity between the condition and discharges of the vagina in what is commonly considered infectious gonorrhœa, and that form of the disease arising after intercourse with a woman affected with a leucorrhœal discharge only.

In gonorrhæa, the first symptoms of the disorder are referrible to the vagina and the urethra, and the anterior wall of the vagina has been particularized as the special seat of inflammation. The os and cervix uteri, the fundus uteri, Fallopian tubes, and the ovaria, become inflamed in some cases, but I believe only as an extension of disease from its first seat in the vagina. We meet also in practice with cervical leucorrhœa in women who have suffered from gonorrhæa, long after vaginal inflammation and the urgent symptons of gonorrhœa have disappeared. This form of cervical leucorrhœa appears analogous to gleet in the male, but it does not differ from cervical leucorrhœa originating in other ways. Let us now inquire what are the conditions of the utero-vaginal membrane and its discharges in gonorrhœa in the female, and in those cases of leucorrhœa capable of exciting irritation in the male organs respectively? I cannot offer a large number of cases, but those I have observed seem to throw some light upon the subject :—

Case I.—*Acute Gonorrhœa.*—A young unmarried woman presented herself as an out-patient of the hospital, suffering apparently from leucorrhœa. She complained of dragging pain in the lower part of the back, heat in the passage, and difficulty and pain in making water. On examination, she was found to be suffering from vaginitis, with profuse discharge from the vaginal surface. The os uteri was red and

tender, but no discharge issued either from the canal of the cervix or from the surface of the os uteri. She stated that she had born a child four years ago, and admitted that she was accustomed sometimes "to see a friend." The discharge appeared suddenly, after intercourse, and she acknowledged that she knew it was gonorrhœa which had been communicated to her. I took a small portion of the discharge from the vagina for microscopical examination, and it consisted of pus corpuscles, with a profuse quantity of epithelial desquamation and epithelial *débris*; it was distinctly acid. In this patient, the gonorrhœa subsided without extending to the os and cervix uteri, but she has since suffered from inversion of the vagina and prolapsus uteri, depending upon debility of the vaginal walls, a result which very frequently follows upon epithelial vaginitis.

Case 2.—*Acute Gonorrhœa.*—The following case of gonorrhœa, the result of infection, I saw with Mr. Ballard, of South-wick-place. The subject of it was a girl aged twenty, in whom the symptoms of gonorrhœa came on only two or three days before. On examination, the meatus and the whole of the vagina were of a deep-red colour. The inflammation did not, however, extend to the os and cervix uteri, which were pale, and natural in colour. The whole of the surface of the vagina was smeared with a thick, opaque discharge. When examined microscopically, it was found to consist of fat-globules, pus-corpuscles, and scaly epithelium, in all stages of development. The vaginal secretion, notwithstanding the presence of pus, was highly acid. In this case the gonorrhœal inflammation was limited to the vagina, the os and cervix uteri remaining unaffected. All the symptoms of gonorrhœa in the female, fever, lancinating pain in the vagina, excessive scalding in making water, and pain on evacuating the bowels, were present in a high degree. As regards the microscopical and chemical characters of the discharge, it would have been impossible to distinguish between this case and any case of vaginal or epithelial leucorrhœa, not the result of contagion.

Case 3.—*Gonorrhœa occurring during Pregnancy.*—A patient was sent to me by an eminent surgeon, in 1851, in the sixth month of pregnancy. She had, some weeks before I saw her, contracted gonorrhœa. She complained of dysuria, constant pain in the vagina and in the course of the urethra, and profuse leucorrhœa. On making an examination with the speculum, the meatus urinarius, the whole of the vagina, and the vaginal portion of the cervix, were in a state of inflammation. A plug of thick mucus hung from the cavity of the cervix, and a proprofuse discharge covered the walls of the vagina. Examined with the microscope, the vaginal portion of the discharge was found to consist of immense quantities of epithelial matter, in single scales of every size from mere nuclei upwards, and of flakes of epithelium in masses. On one occasion this patient brought a tumblerful of these flakes, mixed with a little water. The vaginal discharge was distinctly acid. The plug of mucus hanging from the os uteri consisted of the usual elements—plasma and mucus corpuscles. She became well before her delivery, and her child was not affected with opthal-

mia. In this case the gonorrhœal inflammation extended to the cervix uteri. There was no question about the gonorrhœa. The patient was a kept woman, and during the absence from town of the gentleman who cohabited with her, she contracted gonorrhœa, which communicated it to him on his return. In this case there was not only vaginitis, but an inflamed condition of the canal of the cervix, with profuse epithelial and mucous discharge. From the symptoms, however, I think it probable that the irritation extended from the vagina to the cervix uteri after the vaginal portion of the gonorrhœa had been some time in existence.

In the next two cases, symptoms resembling Gonorrhœa in the male were excited by intercourse with women, the subjects of Vaginal or Epithelial Leucorrhœa. I have seen similar cases in hospital practice; but I have selected those which follow as occurring in private patients, and where the existence of gonorrhœa from infection was not suspected.

Case 4.—*Epithelial Leucorrhœa communicating obstinate Urethritis.*—A married lady, aged twenty-five, was sent to me by Mr. Avery under the following circumstances: She was married at eighteen, and remained in good health for two years, when she miscarried at the fifth or sixth month, and since then she had been out of health. A year and a half ago she became the subject of leucorrhœa, accompanied by heat and pain in the uterus and vagina, and pain during micturition and defœcation. At this time her husband became the subject of urethritis, as he declared, from intercourse with his wife. The gleet and leucorrhœa were cured, but at the end of 1852, this lady suffered from another acute attack of leucorrhœa, which as before was followed by blennorrhagia in her husband. On examination, I found the vagina inverted to a considerable extent, and the os uteri prolapsed so as to be within an inch of the vulva when she stood in the upright position. The os and cervix uteri were perfectly healthy. There was no abrasion of the surface, nor was there any excessive secretion of the follicles of the cervical canal. The surface of the vagina was red and injected, the papillæ being very evident, and the whole canal was smeared with a discharge, consisting of mucus and pieces of skin-like matter. Some of these pieces were an inch in diameter. Under the microscope, the mucus consisted entirely of epithelial particles and plasma; and the large pieces were dense layers of epithelium. The whole secretion was intensely acid. There were no signs of urethritis in this case. I believe I can depend upon the truthfulness of the parties, and that there was no possibility of gonorrhœa, and no other source of the disorder than a spontaneous epithelial vaginitis, which excited urethritis in the husband.

Case 5.—*Epithelial Leucorrhœa communicating Balanitis, and accompanied by scanty and difficult Menstruation.*—I saw the subject of the following case with Mr. Westall, of Croydon, in Dec., 1852. A lady, twenty-seven years of age, had been married three years. Up to the time of her marriage she had menstruated regularly and pretty

freely. Ever since her marriage, although experiencing the ordinary symptoms, and suffering acute pain, no catamenial secretion appears beyond a few drops for the first day or two of her monthly illness. After this, she appears to suffer from local inflammation, which, with or without remedies, last a few days, when she rallies and waits for the next attack. About six months before I saw her, the os uteri was dilated by instruments, and though she suffered a good deal at the time, she was better for two or three months afterwards. There was some reason for suspecting her to have been pregnant at this time, and she went to Italy, where she had a sharp illness, and was supposed to have aborted. On examination, I found the uterus very low in the pelvis, as it generally is in young women who have been the subjects of vaginitis. The vagina was florid, and a good deal of shreddy matter was found upon its surface. These shreds she described as being constantly passing from her. The shreds consisted of masses of scaly epithelium which had been detached from the vaginal walls. On two or three occasions the husband of this lady had suffered from balanitis, and there was no suspicion whatever of any source of irritation or contagion, except that depending upon the chronic vaginitis, from which the wife had suffered. The vaginitis was no doubt caused by sexual intercourse, and was itself probably the cause of the difficult and scanty menstruation.

For the next case, which is a highly interesting one, I am indebted to my friend, Mr. T. W. Nunn :—

Case 6.—*Epithelial Leucorrhœa occurring during Pregnancy, and communicating repeated attacks of Balanitis.*—" A gentleman, who had been married about two years, applied to me with severe balanitis (gonorrhœa preputialis). Previously to his seeking my advice, he had employed various astringent lotions, and on one or two occasions sulphate of copper in the solid form, without permanent good result. At the time when the affection first showed itself, his wife was four months pregnant, and had become the subject of a discharge, which was described by him as resembling thin white paper half chewed ; this was frequently very profuse, and occasionally gave rise to a slight scalding on her passing water. Whatever means were employed to get rid of the balanitis were invariably frustrated by a repetition of coitus. It must be stated, however, that even during periods of abstinence for two or three weeks, the advance towards cure was but slow, the prepuce being with great difficulty drawn back, and the patient refusing to allow of its being slit up. On testing the secretion of the wife's vagina with litmus paper, in pursuance of the hint given me by Dr. Tyler Smith, it was found to be intensely acid, the intensity being inferred from the rapid and decided change of the blue to red. This acid epithelial discharge continued during the remainder of her pregnancy, and for some two months after confinement, tonic medicines, exercise, and injections of cold water, having been prescribed by the physician who attended her. The leucorrhœa at length disappeared, and with it the last trace of the husband's balanitis. There

was at no time a discharge from the husband's urethra; neither were there any syptoms of stricture. By the way, he stated that upon penetration the acrid secretion of the vagina instantaneously produced severe smarting of the penis. I suggested the employment of soap and water, made additionally alkaline by bicarbonate of soda, as an injection into the vagina, but with not much effect in preventing for more than two or three hours the corrosive effect upon the mucous membrane of the glans and prepuce.

"Although in this case there was, as stated, no urethral discharge, I think there can be no doubt of the possibility of so called leucorrhœal discharge producing urethritis in the male, but not of a very obstinate character. I am inclined to believe that when urethritis is produced in this manner, it makes its appearance immediately after connexion,—that is to say, within twelve or fourteen hours. On the other hand, urethritis produced by a *specific animal poison* has a period of incubation of from four to fourteen days, and is attended with *chordee*, and is not to be cut short by what is called the abortive treatment, when the discharge is established."

The occurrence of Ophthalmia in new born infants, when the mothers have suffered from gonorrhœa or leucorrhœa, is a subject nearly akin to that which we have been considering. Ophthalmia Neonatorum, when it is caused by utero-vaginal discharges, is generally considered to depend upon muco-purulent infection. I have only one case to offer which bears upon this point, and it will be seen that it favours the supposition that it may be the acid or epithelial secretion of the vagina in viginal leucorrhœa, and not the irritation of purulent matter, which excites ophthalmia in the infant. May not the same cause operate in the production of gonorrhœal ophthalmia.

Case 7.—*Epithelial Leucorrhœa communicating Ophthalmia Neonatorum in two Successive Labours.*—The case I am about to relate I saw in consultation with Mr. Guthrie. A lady in moderately good health became pregnant in 1844, and for two or three months before her delivery she suffered from leucorrhœa with vaginal irritation, but without much pain. She had an easy and natural labour, but the child suffered severely from ophthalmia after birth. After the birth of this child she had one abortion, but she did not have another child till 1852. In this, as in the first pregnancy, leucorrhœa appeared in the latter months of pregnancy. Her labour was very quick, but two days afterwards the child was attacked with ophthalmia, and it became totally blind of both eyes. I saw this lady six weeks after her confinement. The lochia had ceased a fortnight after delivery, but the leucorrhœa remained very much as it was before her delivery, The discharge was profuse, but the local symptoms were not severe, though she was much out of health. On examination, the uterus was bulky and low down in the vagina, the vagina itself being loose and injected, and falling in between the valves of speculum during the examination. There was a slight discharge from the cervix uteri, but the greatest quantity was secreted by the vagina. I carefully collect-

ed some of the mucus from the vagina and from the cervix uteri. Both specimens were distinctly acid. The cervical mucus was curded by the vaginal acid, and this no doubt was the cause of its acidity. Under the miscroscope the cervical mucus consisted of mucus corpuscles and plasma, with a few epithelial scales, while the vaginal mucus consisted of multitudes of epithelial scales, with some mucus corpuscles, the latter being comparatively few in number. In this case there was no suspicion of gonorrhœa, and it is extremely improbable that a lady of station should have had a gonorrhœa in the latter parts of two pregnancies, occurring at a distance of eight years from each other, and that she should have been free from the discharge at all other times. Ophthalmia neonatorum, when derived from the mother, has been held to depend, as I have already stated, on muco-purulent discharge from the os and cervix uteri, but this is rendered improbable when we consider the extreme frequency of such discharges, and that a profuse secretion of mucus from the cervix uteri is the means by which the vagina is lubricated during labour.

The foregoing cases are not sufficiently numerous to be conclusive, but they render it possible that epithelial vaginal discharge may be the connecting link between gonorrhœa, contagious leucorrhœa and ophthalmia neonatorum. The question again arises, is there any difference between a gonorrhœa in the female, the result of infection, and a leucorrhœa arising spontaneously, but capable of exciting urethritis or balanitis in the male ? In the case related, the microscopical appearances were nearly identical in these two forms of vaginal discharge. Is gonorrhœa in the female anything more than epithelial inflammation of the vagina ? It would probably be very instructive to make a series of microscopical examinations of the discharges in cases of infectious gonorrhœa in the female ; of infectious gonorrhœa in the male ; of leucorrhœa in cases where urithritis has been produced in the male, and ophthalmia in the infant ; of the male urethral discharges in such cases ; and of opthalmia in newborn infants excited by gonorrhœa and leucorrhœa respectively. I believe Mr. de Meric, the able exponent of the doctrines of M. Ricord, has already commenced such an investigation, in all that relates to discharges from the male urethra, and I have no doubt that his researches will prove highly valuable.—*Lancet, Aug.* 20, 1853.

Cure of Artificial Anus, sucessfully treated on the principle of Mechanical pressure constantly acting within the Rectum.—By Wm. Macdonald, M. D.

About six years ago, W. C——, an engineer, residing in this city, consulted me relative to a penetrating wound of the right groin, an inch in length, through which the fæces were evacuated insensibly. The wound was accidentally produced by a fall upon an iron railing.

Very soon after the occurrence of the accident in question, as always happens, adhesion of the injured part of the intestinal canal to the edge of the opening in the parietes of the abdomen readily took

place. This circumstance, which happens in penetrating wounds of the intestinal canal, has obviously the effect of preventing extravasation of the contents of the bowels into the cavity of the abdomen, which would likely produce fatal peritonitis. Again: this adhesion of the injured part of the gut to the edge of the opening in the parietes of the abdomen is produced by the inflammation which always follows wounds and precedes gangrene of the intestinal canal—a most wonderful instance certainly, of the salutary power of inflammation, and in this aspect it assuredly acts as a remedial process.

Notwithstanding that adhesion of the injured part of the intestinal canal to the edge of the opening in the parietes of the abdomen took place, as it were, by the first intention, still the fæces pressed involuntarily out by the artificial anus partly, and partly by the natural outlet. This unpleasant and painful disease continued unmitigated for five years, and all the assistance afforded to this patient by my medical friends and myself, during that period, was in vain, and every method of treatment entirely failed of success. In this critical conjuncture the patient was respectfully informed that it seemed to be likely that his complaint was incurable.

About seven months ago I accidentally met the patient in question. I inquired after his health. He replied that his existence was a burden to him, and that all the fæces was now evacuated by the artificial anus at the groin, and that nothing but a little mucus came by the natural passage. On the spur of the moment I urged that he should remain in bed for some days to come, and during that period that he should constantly employ a pretty long piece of brown soap, shaped like a large wax candle, besmeared with olive oil, and kept well up in the rectum by a compress, and that in order to provoke the descent (in part at least as formerly) of the fæces by the natural passage. I also urged that a cataplasm of bean meal should at night be kept to the artificial anus, while during the day it was to be dusted over with finely-powdered chalk, and moreover that he should take an alterative course of tincture of gentian and tincture of iodine, say five drops of the latter to a teaspoonful of the former three times daily, followed by castor oil twice a week.

At the time that I urged the employment of the mechanical pressure within the rectum, this measure was solely recommended in order to provoke in part the descent of the fæces towards the natural aperture. But great was my surprise and great was the delight of my patient when it was found that daily there was less and less fæces passed out of the artificial anus by the agency of the pressure within the rectum, and at the end of two weeks the artificial anus was completely healed by the constant pressure.

After the cure was effected, I began to ascertain the real cause of my success. It was certainly very simple, and obviously quite accidental as far as I am concerned; and although not recommended at the time, it was employed on the basis of scientific data; yet the experience of the event is well calculated to establish the value of the

discovery. Thus the constant mechanical pressure of the soap within the rectum, and over the sphincter and levatores ani, caused a constant tenesmus or desire to evacuate the contents of the alimentary canal, just as is produced by volition and the reflex action of the nervous system in the abdominal region during the effort of voluntary straining at stool. Again, in the constant exercise of this tenesmus, or straining as at stool, thus produced by the constant employment of the mechanical pressure, it is obvious that a further pressure of the parietes of the abdomen is called into constant exercise, whereby a contractile force is further applied to the three membranes of the intestinal canal—viz., the peritonæal, muscular, and villous coats, and thus by the combined contractile agency of all these various tissues was the artificial anus completely cured, solely by pressure.

The patient in question was quite well for four months, and would, as I think, have been quite rid of the unpleasant consequences of the artificial anus during the whole period of his natural life, were it not for an accidental fall into the hold of a vessel, having coals on board, about three months ago, by which fall he came in contact with an angular piece of coal, which, unfortunately for him, struck him over the very seat of the old artificial anus, and burst the integuments, through which the fæces passed out involuntarily and as formerly. Yet the employment of the same remedies as before healed the artificial anus again, in about the same period of time as before noted, and it remained whole for several weeks,and would have remained whole, as I think, also during this patient's natural life ; but I must add, and I do so with regret,that within a few weeks my patient happened to be engaged in a tumult with some inebriated friends, and in the fray he received a kick over the artificial anus again, which lately remained re-opened. The patient was then informed that whenever he gave up the vice of drinking ardent spirits to excess, and whenever he was desirous of employing the former remedies, I had not the slightest doubt but the said remedies would be crowned with success, as on the two former occasions.

I have not as yet had any experience of the effects of similar treatment, in cases of artificial anus produced by gangrene of the bowels, called by some practitioners a mortified hernia ; but, reasoning from analogy, I should think so, all things being equal ; at any rate the treatment would seem deserving of a trial under similar circumstances.

Upon the whole I have taken the liberty of giving publicity to this case of artificial anus from a penetrating wound, and twice cured by mechanical pressure constantly employed within the rectum, in the hope that my medical friends may be equally fortunate in similar cases. Should this happy and fortunate event be realised in all such cases, I shall feel well satisfied, and certainly fully rewarded.—*Lancet, Aug.* 27, 1853.

On the use of Cinnamon in certain examples of Menorrhagia.—By T. H. Tanner, M. D.

Amongst the numerous cases of menorrhagia which come under my notice in hospital and private practice, instances are not unfrequently met with where no satisfactory explanation can be given for the increased catamenial flow. Of course, amongst these, patients suffering from general plethora from hæmorrhage caused by polypi either within or without the uterus, or from that dependent upon fibrous tumours, uterine hydatids, ulceration (simple or malignant), or upon a watery condition of the blood, are not included. In the instances alluded to, I have almost always been unable, after careful examination, to say upon what the menorrhagia depended, since no physical alteration could be detected in either the uterus or ovaries; it has only therefore been practicable to assert what were *not* the causes.

The symptoms usually presented are briefly these: the catamenia appear regularly every twenty-eight days, and are at first only of the proper quantity; but, instead of ceasing after a duration of three or four days, they continue unabated for ten or fourteen, and occasionally even for three weeks. The general symptoms which arise from this debilitating discharge are just such as might be expected. There is general weakness, languor, mental depression, with pains in the head, loins, and so on; the patient suffering, it is to be remembered, not from any diseased condition, giving rise to the hæmorrhage, but merely from the loss of blood itself. In other instances the discharge continues a less time, but the flow is more abundant, clots being frequently discharged; this variety is generally followed by leucorrhœa. My own experience tends to show that these forms of menorrhagia occur more frequently in unmarried than in married women; but, for many reasons, and especially because of the class of patients from whom my observations are for the most part deduced, I would not say positively that such is the case.

Aliments of this class are at all times troublesome to cure, but those I am considering are particularly so, from the absence of any special indications for treatment. In some of them, indeed, it appears, at first sight, only necessary to keep the patient quiet, to administer astringents, especially such as act particularly upon the uterus, and to regulate the diet, in order to give the desired relief. But it will often be found that these means are quite inefficient, and the acetate of lead, gallic acid, the ergot of rye, oxide of silver, sulphuric acid, tincture of sesquichloride of iron, and similar remedies may be employed without any avail. In thinking over these cases I was led, from a remark made by Dr. Pereira, to try the use of cinnamon. In the last edition of the "Elements of Materia Medica," this gentleman says, when speaking of cinnamon, that "some writers regard it as acting specifically on the uterus," (vol. ii. p. 1307,) and reference is then made to the writings of Sundelin and Wibmer. As far as I know, these are the principal authors who have recommended the use of this

agent ; for I am not aware that mention is made of it by gentlemen who have written on obstetrics and the diseases of women in this country. Having thus been led to try the effects of this agent, and having derived the most beneficial effects from its employment, I have felt desirous of making its value more generally known, that its utility may be tested on a large scale.

That its beneficial action is really due to some specific effect which cinnamon exercises upon the uterus, and not any astringent property it may possess from the tannic acid which the bark and leaves of it contain in common with all the lauraceæ order of plants, is, I think, certain ; and partly in confirmation of this view, it may be mentioned, that in a case of labour in which I employed it, it *appeared* not only in a marked manner to increase the severity and rapidity of the pains, but the patient, who had in her previous labours suffered severely from flooding after the birth of the placenta, on this occasion lost only a very small quantity of blood. That this fortunate circumstance was due to the administration of the cinnamon I do not of course pretend positively to assert ; the case is merely mentioned to give some colour to the opinion expressed that this agent acts specifically upon the uterus. Much clearer evidence of its value in such cases of menorrhagia as I have described, is, however, easily obtained. The principal points I would now refer to are, that it acts after the failure of other astringents ; that it is most efficacious given alone, uncombined with other medicines ; that if its employment be discontinued too soon, the discharge of blood returns ; while, in a few instances, it has been found necessary, after an apparent cure, to resort to its employment for the two succeeding catamenial periods, when the menstrual flow after continuing for three or four days, has not given any signs of abatement, and when the patient has begun to suffer from mental depression and the early symptoms of general debility. The form usually employed, and which appears to be the best, is that of the tincture, in drachm doses, using cinnamon water as the vehicle ; it should be taken about every six hours, but not more frequently, as it is apt to give rise to nausea and vomiting. It is also better to continue its administration for about fourteen days after the symptoms which called for its employment have disappeared ; and even then, if the case has been an obstinate one, a draught composed of it should be taken once daily for a month.

In concluding these brief observations, I trust I shall not be understood as recommending cinnamon as an infallible remedy in all examples of menorrhagia. All I would wish to assert is that in a certain class of cases I have found it to possess properties of great value ; and though I might have waited until I had been enabled to test its properties on a larger scale, yet I preferred giving the results of my experience at once, in order that the readers of The Lancet might have the opportunity of employing this agent, and ascertaining its value for themselves. If they will do so, and record the result, we shall soon possess satisfactory data for determining the action of cinnamon upon the uterus.—*Lancet, Oct.* 15, 1853.

Amputation at the Ankle-joint for a recent injury.—Under the care of Mr. CURLING.

T. C——, an Irish boy, eight years of age, was brought to the London Hospital on the evening of April 15th, 1852, in consequence of his right foot having been crushed by the wheel of a heavy cart passing over it. The bones of the tarsus and metatarsus were more or less crushed, and the integuments of the sole bruised as far as the heel, which fortunately had escaped injury. A large lacerated wound extended across the front of the ankle. Mr. Curling was sent for, and determined, as no operation for saving any part of the foot was admissible, to amputate at the ankle-joint.

The patient having been narcotized by chloroform, the operation was performed in the usual way, the lacerated wound in front of the ankle being included in the upper incision. The pliancy of the parts in so young a subject rendered the operation particularly easy. After removal of the malleoli, the integuments of the heel covered the ends of the tibia and fibula, and were secured there by sutures. No adhesion took place, but the part healed by granulation without any slough of the skin. The bagging of matter in the heel caused two openings by ulceration. The stump was quite cicatrized seven weeks after the operation.

The following cases were noted by Mr. Turle, former house surgeon to the hospital:—

UNIVERSITY COLLEGE HOSPITAL.

Amputation at the Ankle-joint; Useful Stump.—Under the care of Mr. ERICHSEN.

CATHERINE B——, a night-nurse at the British Lying-in-Hospital, aged thirty-five years, was admitted Oct. 20th, 1851, her left foot having been crushed by the fall of a wagon-wheel on it. Most of the metacarpal bones were fractured, and that of the great toe was projecting, denuded of periosteum. Mr. Erichsen, finding it impossible to save the foot, performed amputation at the ankle-joint, after the ordinary method. Water-dressing was applied to the stump, and the limb kept raised.

On the following day the stump looked healthy, the flap was brought well up by isinglass plasters, and secured in its position by sutures. Water-dressing was lightly applied over.

On January 6th, 1852, ten weeks after the operation, the stump was perfectly sound, being cicatrized at all parts; pressure from below oc-

casioned no uneasiness, and the general health was good. The catamenia, which had been suppressed from the time of the accident, had now re-appeared. She was discharged cured.

Amputation at the Ankle-Joint of one Leg, and midway between the Knee and Instep of other; Death from Debility.—Under the care of Mr. ERICHSEN.

William S——, a farm labourer, aged twenty-seven years, of rather delicate appearance, about the middle of January, 1852, while recovering from a severe attack of typhus fever, felt a sensation of numbness in the left foot. In the course of twenty-four hours it had assumed a purplish hue, which rapidly became darker, and there was also some diminution of temperature. About a week afterwards the right foot also became numb, and soon similarly discoloured; gangrene of the dry form had evidently set in. This continued to advance until it reached the level of the articulation between the first and second rows of tarsal bones, where the line of demarcation was formed, and at this point the separative process commenced. The constitutional symptoms during the progress of the disease were those of debility. Little had been done beyond the exhibition of opiates, and the application of hot fomentation to the feet.

On admission, (Feb. 11th, 1852,) both feet were of a purple colour, cold, and shrunken; at the point previously mentioned the ulcerative process had proceeded to a considerable extent, and there was abundant putrid discharge. In the left foot the gangrene had extended about an inch above the heel, and there was great depression of the vital powers. Opium was ordered; extra full diet and porter; and, two days after admission, Mr. Erichsen removed the sphacelated portions of both feet at the same point in each, exposing the astragalus and os calcis.

For the first few days succeeding the operation the stumps had a healthy appearance, but, on the 20th, the discharge had diminished in amount, and was of an offensive character; there was more sloughing of the surfaces of the stumps, and erysipelatous redness around. The patient's countenance was anxious, his tongue furred, and he had been very restless and somewhat delirious the preceding night. He was ordered opium and ammonia; yeast poultices were applied to the stumps, and hot fomentations around them.

He rapidly improved during the next few days, the erysipelas subsiding, and the surfaces of the stumps becoming clean and covered with healthy granulations. There was also a corresponding improvement in his constitutional state; the tongue had become clearer and

moist; the patient took nourishment and stimulants with avidity, and slept better.

A fortnight after admission, Mr. Erichsen operated on both limbs; on the right he performed the northern operation at the ankle, but as there was not sufficient healthy integument remaining on the left heel, it was deemed necessary to take off the leg, which was done about four inches below the knee. Water-dressing was applied to the stumps.

Four days afterwards, there was a fœtid brown-coloured discharge from the right stump, some sloughing of the flaps on both sides, and some erysipelatous redness extending to the knee in the left limb. Yeast poultices were applied, and ammonia administered internally.

On March 2nd, six days after the operation, the surfaces of both stumps were still in a sloughing condition, and several patches were removed with facility. Considerable portions of the flaps of both stumps, especially of the left, have sloughed away. The general health remained good. He took meat daily, as well as brandy and stout.

From this time the stumps rapidly improved in appearance; on the 11th day the surface of each was quite free from slough, and covered with healthy granulations; the remaining portions of the flaps were approximated as far as practicable by strips of plaster, the granulating surfaces dressed with solution of sulphate of zinc, and the stumps tightly bandaged.

The stumps continued to improve as well as his general state, but soon afterwards signs of exhaustion were noticed, and he died one month after the operation.

Amputation at the Ankle-Joint; Favourable Results.—Under the care of Mr. Erichsen.

Thomas S——, aged fourteen years, was admitted Feb. 16th, 1852. He is a native of Warwickshire, has a ruddy complexion, and all the appearance of robust health. About six years before admission he jumped from a gate-post to the ground, and injured his right foot. The heel soon afterwards became inflamed, pus formed on the outer side, and escaped spontaneously. The discharge has still continued; small in quantity, unhealthy, and of an offensive odour. Abscesses, and afterwards sinuses, formed on the back and inner side of the heel and outer side of the foot. The patient suffered some pain in it during the first year, but none subsequently, and he has been able to walk about freely on it.

On admission, the right foot was found to be considerably larger than the left; on the inner side there was thickening of the integuments and marks of old cicatrices. On the outer side, extending from an

inch above the malleolus, were four openings, discharging thin, unhealthy pus; also two similar openings one inch and a half above the heel. The probe could be passed through one of these, forwards and inwards, to a depth of several inches, meeting with dead bone in every direction, showing extensive disease of most of the tarsal bones.

On Feb. 18th, the patient was put under the influence of chloroform, and Mr. Erichsen removed the foot at the ankle-joint. Wet lint was afterwards applied between the flaps; this was removed in the evening, and the flaps brought into approximation by sutures and strips of plaster. An opiate was also given.

On the day following, the stump had a healthy appearance. No febrile symptoms were present.

From this time the stump continued to progress most favourably, without any untoward symptom, the patient's health remaining excellent.

On March 6th, sixteen days after the operation, cicatrization had advanced throughout the greater portion of the anterior part of the wound, the flaps of the remaining portion were separated only by a narrow interval, which was covered with healthy granulations, secreting laudable pus. The flaps were well-secured by strips of isinglass plaster, and the granulating surface dressed with a stimulating lotion, and the stump bandaged.

This patient was eventually discharged with a good stump, the anterior part of which was completely and firmly cicatrized.

Amputation at the Ankle-joint.—Under the care of

Mr. Fergusson.

Wm. S——, a bookbinder, aged fifty-one years, was admitted May 8th, 1852. About six months before admission, he was troubled with a slight pain at the instep, which became swollen, the tumefaction and pain soon creeping round the ankle. He was treated in the usual way as an out-patient, discontinued his attendance for two months, and was admitted into the house after this period with much inflammation about the inner side of the foot and ankle.

Poultices, &c. were used for the first month, and an incision was then made, which allowed of the escape of much purulent matter. Another abscess was subsequently opened, and the part remained much inflamed. It was at this time supposed, on moving the joint, that distinct grating was taking place, and diseased bone was some weeks afterwards felt by Mr. Fergusson, on opening a sinus on the inner side of the foot,

On October 9th, 1852, Mr. Fergusson performed amputation at the ankle-joint, whilst the patient was under the influence of chloroform. The tissues were dissected off the os calcis before the latter was separated from the tibia and fibula; by these means the parts were not so much stretched as in the usual procedure. A ligature was placed on the anterior tibial artery, and on two or three smaller vessels; the posterior tibial artery did not bleed, and it was thought to be obli-

terated from the long continued inflammation. The flap was united by stitches, and water-dressing applied.

Soon after the patient's removal to bed, hæmorrhage came on, and he lost a great quantity of blood; he turned pale, and the pulse was small and irregular. Choloroform was again administered by Dr. Snow, the stitches were cut, and the stump exposed. On turning out the clots, the posterior tibial artery and two other vessels of considerable size were found bleeding freely. Ligatures were placed on these arteries, and the stump again closed.

The healing process continued in a pretty favourable manner for forty days, but the posterior part of the stump presented a fistulous opening, through which an abundant discharge was taking place. Six weeks after the operation the patient was not able to hang down the leg, or use any pressure on the stump, though the latter was firmer and less painful than formerly. He was discharged January 14th, 1853, almost three months after the amputation. The stump had scarcely healed, and was still very tender on pressure. There was a small sinus at the posterior surface, which discharged pus, and one anteriorly, from which oozed a fluid resembling synovia. The patient could not allow the leg to take a vertical direction for more than a few minutes at a time. His general health, had, however improved considerably,—*Lancet, August* 13, 1853.

MADRAS JOURNAL OF MEDICAL SCIENCE.

DECEMBER, 1853.

Various scourges came amongst men at different periods and swept away numbers from off the face of the earth, the most if not all of them, being originated by neglect of cleanliness and ventilation, or by intemperate and sinful indulgences. Syphilis owes its origin to the ancient Gauls, who, while on a campaign, indulged in promiscuous intercourse with a small number of females in camp, and totally neglected attention to cleanliness. The Plague came out of the filthy and thickly inhabited towns of Egypt; but the cause of Small-pox is not known. Cholera, which only lately came amongst us, is undoubtedly the offspring of accumulations of filth in crowded and badly drained Towns.

This last dread visitant in making rapid strides all over the world, and is appearing in places where it was only known by name, or never heard of. In towns that become crowded and are made reservoirs for filth, cholera finds an abode. Not its presence, but the delay of its appearance in certain localities

when circumstances are so favorable for it, is astonishing. While in Singapore five years ago, we were surprised to find that cholera was not known in that Island, the suburbs of the town of which place, were the sources of the most abominable gases in the greatest quantities that could exist without producing immediate suffocation. But two years did not expire before it came, and sent hundreds to the dwelling common to all mankind. It is strange that we should be so absorbed in the pursuit of obtaining riches as to neglect the enjoyments of life, and to expose ourselves to sudden death. Is it not surprising that we should be so apathetic as to allow the sources of this dire calamity to remain amongst us without making an attempt to remove them! In what state of mind would the inhabitants of town—which can be compared to nothing better than a noxious gas generator—be, if a few murderers were among them, who had taken the lives of two or three. Would they not make a common cause of it, and not rest till the delinquents were apprehended? Then why do they not stir themselves, and remove the source of that which slays its thousands? It is the poor who suffer most by this disease, because they are most exposed to the cause of it, and it is seldom that it aspires at striking down such noble prey as a GORDON. If a man were to let loose amongst us a rabid animal, he would be answerable for the death of those caused by it. If one were to commit a murder, he would be execrated and hanged; then what have they not to answer for, and what are they not to expect, who allow to go about that which is more ruthless than the midnight assassin; more destructive than war; and more sure than the bullet. Punishment always follows the infringement of the laws of NATURE, so that, instead of being surprised at the quick work of cholera, if things continue as at present, we may reasonably expect the coming of a new scourge, more dire in its effects than any hitherto known.

MR. SHORTT has taken a bold step and one that cannot but be admired. He is fortunate in having the means—or friends

to supply him with it—of defraying the expenses of a passage to England and back again. We wish him success, and hope that it will not be long before a few more have it said of them that they "are gone to England."

We congratulate those of the Department on being permitted to draw Head-money. As there are some who do not understand the wording of the Order containing this boon, we state that by "extra charge" is meant any independent charge confided to a Subordinate. Many will not derive any advantage by this grant but it is one step up the ladder and all should feel thankful for the *lift*.

We know that it was not inability that kept original communications from our pages, for we have latterly received many and hope to have more sent to us. We would much wish to see some cases drawn up and treated in the manner suggested in "Our Problems," a review of which will be found in the first pages of our Journal. Much information might be communicated relative to Native remedies, by many of the intelligent Dressers, which we call upon them to do. All those whose papers appear in this number get their copies free. We are glad to intimate for the information of our Subscribers, that the Proprietor who is a "*Go-a-head*" sort of a being, contemplates paying the postage of the Journal; and the best way we think of bringing his contemplations to a favorable decision, is by paying up Subscriptions in advance. He has written for some of the best Periodicals in England, so that the Journal will be made hereafter to contain all that is worth knowing in all things concerning the profession; and as we intend for the future, publishing notes from Lectures delivered at the Medical College, of all that they may contain which is not to be found in the last published works on the different branches of the Science, Subscribers will have the means of keeping up their knowledge as effectually, as they would have by subscribing to a number of English Periodicals at great

expense. We hope our brethren will strive like the American to " sit on the safety-valve and beat all creation."

The case of Nunno Bee is interesting as showing the mistake that one is likely to fall into by placing reliance on all death-bed assertions. She was brought into hospital with a deep wound across her throat, and made us understand by signs that she was robbed and wounded by two men. If she had died immediately after this, and before symptoms of unsoundness of mind were observed in her, it would have gone very hard with her husband, who stated at the Inquest that she became so affected only three or four days before she inflicted the wound on herself. She being a Mussulmaun woman made it worse for the husband, as others are not permitted to see one of her caste, which increases the difficulty of getting proper evidence in such cases.

The case of Seenevassum bears evidence to the good effects of Hydrocotyle in Secondary Syphilis. His face was covered with sores which were healing very fast, but he was attacked with cholera and died before they could be cured. We shall say something more about Hydrocotyle in our next.

The case of Sawmy shows that all who are struck by lightning do not die ; but he could not have received any more than a very slight stroke.

The case of Remittent Fever in a young woman, by Mr. Lima; warns us against mistaking hysterical for inflammatory pain, and of using depleting measures where a stimulating kind of treatment should be followed.

Dr. Garrod's theory of the use of Potassa in Scurvy demands attentive consideration and should be put into practice with the view of testing its value. Scurvy is a disease of the blood, which becomes so thin, that it escapes out of the walls of the vessels, and on examination after death, every cut with the scalpel into any of the organs of the body, causes a flow of dark-coloured serum. The causes of Scurvy are deprivation of wholesome fresh food, and free ventilation, and the substitu-

tion of salt provisions, or of that containing a very little nourishment. The system requires a certain amount of potash, and potash is not to be found in salted meat, from which it escapes by becoming deliquescent.

As there is no potash in this sort of food, and as vegetables which contain it are not made use of, the blood becomes abnormal. A supply of phosphate of potash and chloride of sodium is necessary for the maintenance of the purity of the blood, and one cannot take the place of the other. They mutually decompose each other, forming phosphate of soda which becomes a constituent of the blood, and chloride of potassium which enters into the formation of muscle. Now we see that if chloride of sodium alone be made use of, the blood will not get its phosphate of soda, nor the muscles their salts of potash, and that the former will become saturated with salt, which will prevent the coagulation of the fibrine of the blood, and make it very watery; the state it is in, in Scurvy. This explains the mode by which Salts of potash cure Scurvy. But now comes the question how did lime juice do so? Lime juice by itself will not cure Scurvy, its use must be accompanied by that of food containing potash, as vegetables and flesh. In this case we are inclined to think that it removes some of the soda from the blood in the form of citrate, which passes off by the kidneys; and makes room for potash; or that it places at the disposal of the system a greater quantity of the potash contained in the food than would otherwise be the state of things.

We have seen specimens of Mr. Bogg's method of taking impressions of plants which speak in favor of it.

The following are a few notes taken from the Lectures on Physiology delivered by Dr. Smith at the College, and may be thought to contain some interest.

The manner of making artificial milk, we were told, is by mixing together the Albumen of egg, with a little bland oil, a little sugar and water, and a small quantity of salt.

In constipation it was said that purgatives and enemata are often useless, and that this is the case when the disease depends on a want of moisture in the intestines, arising from profuse perspiration caused by high temperature. This kind of constipation affects the European, who mistaking the cause of it, makes use of all the purgatives that one can come across; these fail to cure and he resorts to the cold water system; then to Morrison's pills; and when he finds that he is worse then ever, he tries Holloway. But all the remedies ever heard of do him no good, and continuing to make use of them he ultimately ruins his constitution, by deranging his stomach and draining his system of all its moisture. As the disease depends on dryness of the mucous membrane of the intestines, anything that will lubricate the passages will remove it; and large quantities of fresh milk taken every morning will do so most effectually.

Sea-sickness.—This is a distressing complaint, and one that has baffled all remedies hitherto in use, because they were not adapted for the removal of its cause. Majendie has proved that vomiting is produced by the action of the abdominal muscles, and it is doubted that the stomach takes a part in the operation. If the stomach of an animal be removed and a bag placed in its stead, one end being attached to the duodenum and the other to the œsophagus, vomiting can be excited by injecting a few grains of Tartar-emetic into a vein. Since it is known that vomiting is caused by the action of the muscles, the best way to stop it is by applying a tight bandage, round the lower part of the chest and abdomen.

In speaking of respiration it was said that this function is performed to a greater degree in cold than in warm climates, for being the source of animal heat, there is a necessity for its better performance in a cold climate, where heat is more readily abstracted from the body, than in a tropical one. As the substances that are composed of hydrogen and carbon are those that are expended by respiration, so does the necessity for supplying the system with them in the form of food exist. The consequence of not doing so will be death from cold, as certain as the result of abstaining from nitrogenous food will be death from starvation. The hydro-carbons (respiratory food,) are alcohol and the several oils and fats. As respiration cannot be performed nor animal heat produced unless these substances are supplied to the system, the body resembles a lamp, which cannot burn without oil. Warm clothing partly answers the purpose of food, by keeping in the warmth of the body, but deprivation of both food and clothing while the body is exposed to cold, causes the most poignant suffering. The Professor stated that when he was a Student, he was in the habit of going

amongst the poorest and most wretched inhabitants of the Town, to afford them medical aid, and that he there observed human beings in the most miserable condition that they could be in; shivering with cold; starving; naked or partly covered with dirty rags; and huddled together, to preserve the little warmth that was in them. Though in this state they would spend any little money that they might get, in purchasing spirituous liquors; and for this they were not to be blamed, for it was the necessity for such existing in the system, that drove and compelled them to drink, to do that for which they were stigmatized as lazy drunkards by those who were well clothed and housed, and by whom they were spurned as objects unworthy of assistance or even compassion. With a penny or two they could purchase some spirits, but could not get a loaf, and alcohol being the best fuel, was the most eagerly sought after.

The Professor did not mean to say anything against Temperance Societies, which he allowed were instrumental in the removal of much misery but he excused drunkenness in such extreme cases as that mentioned above, and showed that there may be instances in which it is no crime, and in which the sufferers call for help from the wealthy, and for sympathy from all. Drunkenness under these circumstances he says is a physiological necessity. There was no other way for accounting for its prevalence among the Scotch, which is a very moral nation.

We think that this is the most liberal view that can be held about the matter. The lessons are not few that we have been taught, and still may learn, by attentively observing, and rightly considering, the instincts or propensities of the untutored masses. The further man is removed from the artificial the nearer are his actions to that which is natural. Compare what the Professor said, with that which fell from the mouth of a speaker at a late Meeting of the Members of the Temperance Society. It was there said that the speaker would rather not have hats, if they could not be made without using alcohol, and he would not even have printing if alcohol were necessary for the manufacturing of the ink! Oh shades of Shakespeare and Milton, Dryden and Pope, Johnson and Goldsmith; of all authors, divine, moral, and literary; what say ye to the value placed on your noble exertions.

A TABLE OF THE DIMENSIONS OF THE WALLS OF THE HEART.

Average thickness of the Right Auricle. Lines 1
" " " Left " " $1\frac{1}{2}$
" " " Right Ventricle. " $2\frac{1}{2}$
" " " Left " " 7

	Male.			Female.		
	Years of Age.	Base. Lines.	Middle Lines.	Apex. Lines.	Years of Age.	Base. Lines.	Middle Lines.	Apex. Lines.
Thickness of the Left Ventricle.	From 1 to 4	3	2 $\frac{9}{10}$	1 $\frac{9}{10}$	From 1 to 4	$2\frac{9}{16}$	$2\frac{7}{8}$	$2\frac{1}{16}$
	" 50 79	4 $\frac{37}{38}$	5 $\frac{29}{38}$	4 $\frac{1}{29}$	" 50 89	$4\frac{1}{2}$	5	$3\frac{2}{4}$
	Average from 16 to 79	4 $\frac{65}{122}$	5 $\frac{19}{122}$	3 $\frac{95}{122}$	Average from 16 to 89	$4\frac{3}{8}$	$4\frac{4}{5}$	$3\frac{13}{30}$
Thickness of the Right Ventricle.	From 1 to 4		$\frac{6}{10}$	$\frac{5}{10}$				
	" 30 49	1 $\frac{39}{46}$	1 $\frac{7}{23}$	$\frac{45}{46}$				
	" 50 79	2 $\frac{1}{19}$	1 $\frac{53}{168}$	$\frac{81}{84}$				
	Average from 16 to 79	1 $\frac{113}{122}$	1 $\frac{99}{244}$	1 $\frac{2}{61}$	Average from 15 to 59	$1\frac{2}{3}$	$1\frac{7}{24}$	$\frac{673}{720}$
Thickness of the Septum Ventriculorum.	From 1 to 4		3 $\frac{1}{10}$		From 1 to 4		$2\frac{5}{8}$	
	" 16 29		4 $\frac{17}{18}$		" 16 29		$4\frac{11}{14}$	
	" 50 79		5 $\frac{1}{3}$		" 15 79		$5\frac{3}{19}$	

CAPACITIES OF THE CAVITIES OF THE HEART.

	Male.		Female.	
	Length. Lines.	Breadth. Lines.	Length Lines.	Breadth. Lines.
Capacity of the Cavity of the Left Ventricle	$34\frac{24}{61}$	$59\frac{9}{61}$	$31\frac{1}{30}$	$48\frac{23}{30}$
" " " " Right "	$37\frac{14}{61}$	$82\frac{11}{60}$	34	$76\frac{3}{5}$

Dimensions of the Auriculo-Ventricular Orifices.

The average circumference of the left Auriculo-Ventricular Orifice is 3 inches and $6\frac{1}{2}$ lines

" " " right " " " 3 inches and 10 lines

Dimensions of the Aortic and Pulmonary Orifices.

The average circumference of the aortic orifice is 2 inches and $5\frac{1}{2}$ lines

" " " pulmonary artery 2 " $7\frac{3}{4}$ "

The average length of the heart is $5\frac{1}{2}$ inches. The ventricles 4 and the auricles $1\frac{1}{2}$ inches

The weight of the heart is about ℥ × according to Meckel; vij to viij according to Cruveilhier; ℥viij ʒiij according to Bouilland; and jx to × according to Lobstein.

The weight of the heart in the Adult very seldom falls short of 7 or is more than 10 ounces.

Original Communications.

Cases from the Native Infirmary—Vulnus Incisum.

Nunno Bee, æt. 33.

23rd September 1853. Was brought into hospital yesterday at ½ past 2 P. M., with a deep wound across the upper part of the throat, about 2 inches in length; the trachea is cut through, and the superior portion of the thyroid cartilage separated from the inferior: she breathes through the opening. There was no bleeding from the parts on admission. The wound is said to have been inflicted three days ago, and has been dressed with alum and charcoal. The patient appears to be an intelligent middle aged woman, is unable to speak, but makes signs and gestures to indicate that her jewels were taken from her, that she was held down, and her throat cut; two men being implicated in the deed. An old man came with her and stated that she was his wife, but this she contradicted by her gestures. Bowels were opened by a Purgative Enema.

℞ Mist Salinæ ℥ss. every third hour.

24th. Patient breathes through the wound in the trachea and slightly from the mouth and nostrils, slept very little last night, appears uneasy in mind, which is indicated by constant gestures, relative to her throat being cut; P. quick; skin warm; complains of thirst.

Cont. Mist. Saline.

25th. Had repeated attacks of hysterical fits last night which lasted till 2 A. M. Is very restless, making sudden starts off the cot, laughing and crying at intervals; breathing continues the same as at last report; she slept well for about 2 hours this morning; wound open and discharging pus copiously; surrounding marks irritable; P. quick, but small; Skin warm; T. white; heart's action rapid but feeble; is very low; B. not open since last report; dulness on percussion of both sides of the chest; respiratory murmur scarcely audible. Apply 6 leeches, 3 on either side of the wound; and a blister to the chest.

Enema Purgaus S. S. et Cont. Mist. Salinæ ℥ss. 3tiis horis Vespere. Has had continued attacks of fits since last report; breathes with difficulty; a trachea tube was inserted into the wound, when a great deal of pus escaped from it. Is restless, tossing about in bed; Skin warm; P. very small; hearts action feeble; eyes sunk and wandering; countenance anxious. She sunk gradually, and expired at 5 P. M.

Post Mortem.—Sectio Cadaveris 14 hours after death.—Extensive and deep ulceration about the wound in the throat, from which a good deal of pus escaped; its edges are unhealthy. Trachea much inflamed down to the bronchial tubes, which also are red. Lungs are much gorged with blood in the lower and posterior portions, and there are extensive adhesions of pleura on both sides. Brain much gorged with blood, left hemisphere bleeding more freely than the right; cerebellum also very vascular; considerable enlargement and hardness of the pituitary gland. Uterus vascular but small; the right ovary was the size of a walnut and burst on being removed.

Syphilis Consect.

Seenevassum, æt. 30.

18th September 1853. Admitted yesterday evening at 5 o'clock with a number of unhealthy ulcers about the forehead and face. Ulcers deep and passing into each other ; discharge thin ; face swollen ; nose fallen in ; B. confined ; T. foul ; Skin harsh and dry ; Pulse natural ; appetite impaired ; says the disease is of two years standing and attributes it to the abuse of mercury.

20th. No material change.

26th. Ulcers on the face spreading, discharge scanty and ichorous.

30th. Is much the same as at last report.

2nd October. Ulcers burrowing, discharge scanty and purulent.

℞ Inf. Hydrocotyle ℥i.
Pot. Iod. grs. iij. ft. haust. meredie.
℞ Pulvis Doveri grs. x h. s.

5th. Continues in the same state as at last report.

Cont. Remedia.

8th. Ulcers look clean but in other respects are much the same.

Cont. Inf. Hydrocotyle bis in die.

13th. Ulcers look clean and healthy ; swelling of the face very much subsided ; functions natural. Cont. Remedia.

16th. Continues to improve ; functions natural. Cont. Remedia.

19th. Ulcers healing gradually, discharge very scanty and watery ; Bowels regular ; appetite good. Cont. Remedia.

23rd. Is doing well ; functions natural. Cont. Remedia.

24th. Was attacked with Cholera and died on the morning of the 25th.

Ambustio.

Sawmy, æt. 30.

17th September 1853. Admitted yesterday evening at 4 o'clock. Was brought by a Police peon, who said that he found the patient lying near a rice godown on the beach, in a state of insensibility produced by a flash of lightning, which occurred at 3 P. M. On admission the eyes were fixed and staring ; mouth frothing ; respiration heavy ; hair on the head singed. Pulse

feeble ; skin natural ; head-hot. The head was shaved and cold lotion applied to it ; a purgative injection was administered, which opened the bowels three times. When coming to himself complained of a burning pain in the head, chest, and right side. Says he feels better this morning ; skin warm and dry ; breathing difficult ; head hot ; pulse frequent ; T. clean. The burning sensation was relieved by the application of turpentine and oil. Apply cold lotion.

18th. Is improving ; functions natural. Nihil.

19th Was suddenly seized with paralysis of the left side yesterday evening, when attempting to rise ; complains of numbness and heaviness of the same side, walks about the ward now, but very unsteadily. B. were well moved yesterday after the administration of a purgative injection. T. clean. P. and skin natural. Apply Blister to nape.

20th. Blister rose well. B. regular T. clean, in other respects is much the same. ℞ Mist. Salinæ ℥s. bis in die.

℞ Linniment. Camph. ℥j.
Ol. Zerebinth ℥ij.
Liq. Mylabris Cich. ʒss.m

ft. Linniment, et applec. p. a.

21st. Feels much better this morning ; Blister discharging ; Functions natural. Omit. Mist. Salinæ—Cont. Linniment.

22nd. Is much improved and wishes to be discharged from hospital in order to proceed to his native country.

23rd. Discharged.

Vulnus Incisum.

Soobiah, æt. 40, was admitted on the 12th September, with a wound about two inches in length on the upper part of the throat, from which there was no bleeding. The wind-pipe is cut through and the upper part of the thyroid cartilage is separated from the lower. He breathes partially by this opening and the parts are in constant motion. P. full and frequent ; Skin warm and dry. On the 16th a small piece of the thyroid cartilage came away, and on the 24th patient went out of Hospital after the wound had healed and he had regained his voice.

Two Cases of some interest with remarks.—By Assistant Apothecary M. Lima.

Case I. Miss C. R. æt. 14, was suddenly seized with fever on the 27th August. It was of the remittent character and attended with serious head symptoms. On the 29th, acute pain was felt in the region of the spleen. It was increased on pressure and attended with a sharp wiry pulse. On the 30th, distressing pain increased on pressure in the hypogastric region was complained of. Pain over spleen has left, but the stomach is irritable and patient is delirious. The pain shifted to the right hypochondriac region on the 31st. Skin warm, pulse 100, mind wandering. On the following day, pain in the region of the womb was complained of, cerebral symptoms abated, skin still warm and dry. On the 2d September the stools were passed involuntarily and a dull pain on pressure was felt in the region of the womb. Severe pain and tenderness of the right hypochondrium was complained of on the evening of the 3d, and it shifted during the night to the left side. On the 4th patient was three times attacked with convulsions which completely exhausted her and left her with eyes opened and fixed; breathing hurried; and in a state of approaching dissolution. After a time she became conscious of her state; the convulsions did not return; and she continued to rally till she completely recovered in a few days.

II. A. F., Gunner, D Troop Horse Artillery, æt. 29, 3½ years in India. Was admitted on the 23d of August with a boil on the right hip and with pain of a rheumatic character across the chest which he has had for a long time. Liver torpid, and bowels constipated. Had an attack of jaundice some months back. Three days after admission patient complained of uneasiness in the region of the liver without pain on pressure. Had an attack of fever on the 18th September, and the jaundice returned on the 22d. The pain left him, his stools became bilious, and patients health was improving till the 5th October when the following entry of his case was made. Has been for the last few days unusually peevish and dissatisfied, complains

of his clothes being dirty and rough; picks his skin, and refuses to eat his food. The conjunctiva of both eyes is again tinged yellow, and patient is losing flesh. About 2 p. m., he was seized with weakness and convulsive tremors, after which he complained of uneasiness in right side, and of pain stretching across the chest. On the 7th, patient became comatose and had occasional fits of tremors and spasms; the jaws became locked; eyes shut, and pupils dilated and partially insensible to light; skin cool; and stools involuntary. Patient remained comatose till the morning of the 9th when he expired.

Sectio Cadaveris, 8 hours after death.

Skin of a bright yellow.

Head.—Dura-mater much thickened and adhering to the top of the left hæmisphere of the brain, and slightly to the right surface of brain; rather dark-coloured and covered with deposition of lymph; blood vessels gorged with blood; about four ounces of serum effused at base of brain; and on cutting into the brain, watery serum everywhere exuded. Small yellow tubercles were attached to choroid plexus.

Abdomen.—Liver much enlarged and of a greenish-yellow hue. Gall bladder distended with thick tarry looking bile; the mouth of the ductus choledochus seemed to be obstructed by a glandular body as large as a pea, growing and pressing on it externally. *Pancreas*, indurated: *spleen*, much enlarged and congested. *Colon*, contracted: organs otherwise healthy.

Remarks.—The subject of this case had not been long with the troop, having joined only at the end of 1851, and had since been repeatedly in hospital suffering from pains of a neuralgic character shifting from one part to another and attended with torpidity of liver and symptoms of jaundice. His habits were always very singular, either out or in hospital, gloomy, and of a meditative mood: he never freely or voluntarily conversed with any one, always keeping to himself, either taking a solitary walk, reading, lying quietly, or sitting by himself for hours, thoughtful: appeared always satisfied with every thing done for him

and readily took the medicines prescribed (except during the last few days of his illness ;) when spoken to, his answers were generally brief and of a decided tone ; seldom complained even of his feelings of ailment unless when particularly enquired into. He was a man of middle stature, fair complexion, blue eyes and red hair. His appearance was rather stale for a young soldier.

In both of these cases the Acetum mylabris cichorei was very useful ; and this preparation has been extensively employed of late in the European Artillery Hospital here, under charge of Surgeon J. Dorward. It is well adapted by its speedy effect for cases in which prompt counter-irritation is indicated. No stranguary or ardor urinæ follows the application of this remedy as when the cantharidis plaister is made use of. An ointment prepared in the proportion of ʒij of the Liquor mylabris cichorei and ʒj of the ceratum resinæ is useful in cases where the full effect of blistering is not required, particularly in women and children. When prepared in half the above strength (ʒi to ʒj,) it answers the object of keeping up a free discharge from the blistered surface.

TO THE EDITOR OF THE MADRAS JOURNAL OF MEDICAL SCIENCE.

Sir,—The following abstracts of cases with a few remarks are sent for publication in your journal, in the hope that, if they are considered as being in any manner of practical value or interest, they may tend to convey a few hints as regards the treatment of these ophthalmic diseases.

I am, Sir,

Your obedient servant,

P. Kinsley.

Hæmophthalmos.

Veerasawmy, ætat 45, admitted June 15, 1853.

Sanguine temperament.

"With effusion of blood into the anterior chamber of the right eye. The blood occupies what may be called the central part

of the chamber, whilst a little lower, and at the upper portion, lymph is effused : he has no pain in the eye.

This man was operated on (for cataract) by division, and in August last, left this institution, with very good vision. Three months after this, he went to Conjeveram, when the eye came into its present state, without any appreciable cause. He can see light with this eye. The left is amaurotic."

A Purgative, and calomel gr. i, thrice daily. Solution of atropine.

From the date of admission up to the 5th of August, there was no change, when a small portion of blood only was found in the chamber, and the state of vision had improved likewise. About ten days subsequently, a deposit of lymph was seen in the centre of the cornea of the right eye, obscuring the pupil : and the state of the left eye was improving. About this time, a blister was applied to the left temple. On the 23d August the blood was found to be absorbed, and in its place, a fibrinous mass existed. Three days afterwards, he felt a sudden pain in the right eye, and on examining the eye the next morning, there was found to be a fresh effusion of blood in the chamber. Simultaneously, there was a sense of pain felt deep back in the left eye, which subsided in a day or two, by the application of belladonna lotion, and the blister was repeated : pain was also complained of in the right eye, as well as in the circumorbital region of the same side. About the 14th September, on looking at the eye, there was observed a small quantity of purulent matter at the lower portion of the cornea, which was evidently the degeneration of a small portion of the fibrine. From this time, the florid color of the effused blood began to be lost, and here and there a few points were observed to be absorbed, the vision of this eye was now beginning to improve, and the patient was able to distinguish objects, but only by the temporal and nasal sides of the eye. During the period that these changes were going on in the right eye, the left was the seat of severe throbbing pain, increased at night, and remaining unrelieved after the application of a few blisters. On its subsidence, the vision of the eye was said by the patient to have been improved.

The blood in the chamber of the right eye now presented a hardened and dusky red surface, shewing that its coagulation was becoming more perfect, and objects were now distinguished through the inferior part of the cornea. After this time, on enquiring into the state of vision, he said that he was able to see and distinguish objects on either side of him or on the floor of the ward, and the roof of the building was pretty clearly seen; but objects directly in front of him could not be at all seen: and a fresh quantity of blood was observed to have been effused, without any apparent exciting cause. A fortnight subsequently, towards the nasal side and in front of the fibrinous mass, a small quantity of blood was again found to be poured out: and the cornea was observed to be more brilliant, spherical and prominent. A corresponding change was remarked to have taken place in the left eye now, but for the better: the vision of this eye having improved, and the man being able to see light. The last portion of blood that was effused, changed its position constantly during different periods of the day. On the 20th October a further improvement in the state of vision of left eye was observed, the patient being enabled to see close objects, and discern their color pretty well. The cornea of the right eye was unusually spherical and prominent, and in the fibrinous deposit in the chamber, there were seen two or three small vessels by the naked eye—they at least *appeared* to traverse the *deposit*. Previous to this, he did not enjoy much vision at night; but now he was capable of moving about without being led, and objects could be seen. About the 31st October there was slight opacity of the posterior layer of the cornea observed.

After this date, I had no opportunity for observing the state of the eyes, in consequence of removal from the infirmary, but I believe, he is in about the same state.

Remarks.—Hæmophthalmos is a disease of comparatively rare occurrence, although we do meet with cases sometimes, which are well marked, and most usually the result of an injury inflicted on the globe, as a blow by any hard body. Immediately after the receipt of the injury, in most instances, blood

is found to be effused into the anterior chamber, in such quantity, commensurate with the severity of the blow. At other times, in what is called "apoplexy" of the eye, the patient complains of a throbbing sensation in the globe, and after a little while, there is a feeling of "something having given way," and if the eye be examined effusion of blood will be found to have taken place. The patient, on the first accession of the disease, complains of dimness of vision, and describes objects as if they were enveloped in a mist. A sense of pain is also complained of; but this rather depends on the blow given—when this is the cause—than on the mere effusion of blood. There is also a sense of fulness felt. In what may be called the traumatic form, absorption of the blood is readily produced, if the case comes under notice early, by the free application of leeches, and if the patient's age, strength, and constitution admit of it, general blood-letting. But this is rarely called for: the use of leeches, combined with the administration of a purgative, and mercurials at night, will effect a cure. More frequently, however, the time that a rapid absorption ought and can be effected, has long passed when the patient applies for relief and according to the length of time he has delayed, so will the color and consistence of the effused matter be. At some points it will be seen deprived of its red particles, and presenting a buffy front, at other times, if the disease be of long standing, perhaps pus will have formed, which gravitates towards the lowest portion of the chamber, constituting a partial hypopyon: where the bloody matter still remains, we will find it to be of a dusky red color, and firmly coagulated.

The case of hæmophthalmos here detailed, was one of an extraordinary character, and was brought on by imprudent exposure to the sun, a little while after being operated on for cataract here. It must be confessed that very few cases of the sort occur, and still more rarely are they found recorded. The patient is of a pretty good constitution, and it was no doubt owing, in some measure, to the determination of blood by exposure, which caused in the first instance, an excited action in the vessels of the eye, and then their rupture. Perhaps it may

be stated to that other causes existed in the eye itself, and it may be urged, that determination alone produced the effusion into the chamber, and would have brought about similar results, even if the organ was sound. But this is more than doubtful; for if mere determination of blood had occurred, without the patient's eye being predisposed to the disease, the same symptoms, and the same effusion of blood would have occurred in the other eye also; but it did not. It cannot be denied, that after cataract has existed for some time, and that after an operation, the different parts of the eye are not at all in their normal condition. Their healthy balance being thus destroyed, it cannot be doubted, that the slightest exciting cause in an eye so predisposed, will produce such effects as those observed in the case now under remark. The epithelial layer and parenchyma of the cornea, have up to this moment, remained clear, and as far as can be seen, the posterior layer also; but latterly, the membrane of Descemet was supposed to be affected, from the slightly opaque appearance it presented, and from the fact of a few vessels, *appearing* only, to traverse it. Perhaps this is the first symptom of aquo-capsulitis ensuing. From the patient having delayed coming into hospital, the blood effused shewed all the characters of an effusion long existing,—that is, it had not the florid appearance of recently exuded blood, and it looked firm and coagulated. The treatment in this stage of the disease was counter-irritant, by means of blisters to the brow and temple; and mercury was prescribed, in the hope that it would stimulate the absorbents to take up the effusion. But the blood had occupied the chamber too long, and removing it now was quite out of the power of medicine. After the repeated application of blisters, and pushing calomel to the extent of slightly affecting the mouth, there was a change observed in the mass, viz. the loss of its red particles, and the existence of a mere fibrinous mass; but whether we are to attribute this effect to the remedial agents employed, alone, or to the effect of time, it is difficult to say. This much, however, we can make certain of, that, judging from analogous cases occurring in other parts of the human body; of blood being ef-

fused into the tissues of the body, we find, that in the course of time, the fibrine (which is now alone left), becomes organized, and vessels are formed in its substance. And it is only after a very lengthy interval, that we find it removed, if removed at all. Medicinal agents, if they had the power of doing the work alone, would perhaps accomplish it in a much shorter time. So that, in this case, we might safely attribute the change to the combined action of time and medicine ; but more to the former. And moreover, our mercurials may exert so much power over the disease, as to cause the lymphatics to take up the red particles, which by this time have separated from the fibrine, and are in a condition to be readily absorbed. This much and no more, can medicines accomplish. Besides, if we are to attribute the effect solely to remedial means, why does it not follow that the remaining effusion of fibrine be taken up also ? It requires time, with the action of medicines to do so.

From the report taken on admission, it will be seen that this was not the first attack he had, for the blood was found occupying the central portion of the chamber, lymph occupying the rest. Combined with counter-irritation, atropine in solution grs. ij to ℥j) was dropped into the eye, more with the view of keeping the pupil in a dilated condition, for he was able to see light with this eye : and the probabilities are, that, if this precaution was not taken, what little vision was left, would be lost to him. About two months subsequent to admission, he complained of pain in the eye, which was followed by a fresh effusion of blood. On this occasion, he had not exposed himself to the action of the sun, and probably it was owing to some slight exertion he had been making, and the weakness of the vessels no doubt aided much, in bringing on this attack. It is a well known fact, and one which has no doubt struck many oculists, that when once an eye has had this hæmophthalmic affection, it is very liable on the least exertion, to occur frequently ; so much so, that the physiological function, as well as organic structure of the tunics in the neighbourhood of the effusion, become in course of time, totally destroyed, and partial, if not total blindness, is the result.

The blood after this attack, gravitated and occupied the whole of the lower half of the chamber, mounting as high as the pupillary aperture, and towards the nasal side, extending nearly to the superior and internal margin of the cornea. Sympathetically becoming affected, the left eye seemed to suffer from deep-seated inflammation, for the patient complained of pain far back in the eye ; but on the most careful examination, no blood could be found effused into it. Perhaps this was owing to inflammation being set up in the retina, for he had amaurosis of this eye on admision, and this determination causing congestion of the vessels of this membrane—and perhaps of those of the choroid too—may have caused the pain. It is also possible, that the first effusion of blood into the right eye before admission, being accompanied with determination of blood, gave rise to amaurosis.

From the time the chamber became filled while in hospital, the blood continued to remain there, and the three portions of lymph, pus, and blood, became well marked. The lymph that existed on admission was partially converted into pus, and occupied a small portion of the inferior segment of the chamber, while above this, and existing in much greater quantity, there was coagulated blood, the lymph occupied the uppermost portion. From this time, no change whatever occurred in the effused matters, excepting that a little later in the disease, blood-vessels were seen, but whether on the fibrinous mass, or on the surface of the lining membrane of the anterior chamber, does not seem quite plain. The cornea continued remarkably clear, and appeared to have a more brilliant aspect than one in a sound eye has, its spherical form also was well preserved, indeed, if anything, it had become more prominent ; but not conical, for looking at it in profile, it presented no waving form, which a conical cornea always does. This conical state of the cornea may have been suspected to exist, from the state of vision of this eye, and we had consequently to search for it. The subjective symptoms regarding the vision, would have led one to the conclusion that a conical state of the cornea did exist, and we may have rested satisfied that it was so, if no examination

was made. The most remarkable of the symptoms was the state of vision. The patient could, on first coming into hospital, distinguish light merely; but in the subsequent stages of the disease, vision had improved to such an extent, that the patient was able to see objects, but only by the temporal or nasal side of the eye, and upwards or downwards; but by no means could see objects *directly in front of him*. Now, it will be at once seen, that this inability to see objects immediately in front, is just what exists in the conical state of the cornea. As no such condition was observed here, how are we to account for this state of the vision. Was it owing to the more than normal prominence of the cornea? If so, shortness of sight would then be the only symptom complained of. Or was it attributable to the effusion being more dense in front of the pupil, thus excluding altogether, the rays of light from reaching the retina through the centre of the pupil? In searching for a cause, perhaps this is the only one we can assign as giving rise to this state of vision. It will be remembered, that on his admission, blood occupied the central part of the chamber, while lymph was deposited in the rest, and also, that further on in the disease, the red particles of this blood had become removed by the process of absorption, so that fibrine was the only substance found to exist. Every part of the chamber we may now assume, had an effusion of equal density in it. When consequently, a fresh effusion of blood had been poured out in front of this fibrinous coagulum, is it not to be wondered at, that the double layer of effused matter now existing, had an influence to exclude altogether, light, from entering through this portion. Light thus being allowed to enter through every part of the pupil except its centre, gave rise to this peculiarity in the function of vision. We may also reasonably assume, that the original deposit, had become in a measure thinned by absorption, so that from vision being confined merely to the discernment of light, he had gradually become acquainted with the existence of objects around him. It has been remarked above, that owing to the more than healthy sphericity and prominence of the cornea, myopia was a symptom in

this case ; but it did not prevent him moving about the hospital, and he did not make known this symptom himself, but had rather to be led to do so, by our questions.

There were occasional attacks of pain in the right eye, which were no doubt owing to vascular excitement ; but it never appeared that blood was effused with every fresh accession of pain. The shape of the effused portion of the blood always varied. During the day and up to sunset, the blood was seen forming a straight and perfect boundary for itself, and in attempting to make a drawing of the eye, it was with a little difficulty, that the line of separation between the lymph and blood could be made to imitate the one in the natural eye. Towards night-fall, however, during the night, and the following morning, the blood was found to have risen to the upper and nasal part of the cornea, evidently evincing the tendency of the blood,—at least that small portion of it—to remain in a fluid condition. But we may expect it in a short time, to become as firmly coagulated as the other portion. The lining membrane of the anterior chamber has not quite escaped disease : its secretion still remains clear, however, and it is suspected that blood-vessels are formed on its surface. But whether on it, or on the coagulum, cannot be made out.

As the iris cannot be seen, it would not be going too far to suppose that it has sympathized in the affection, and although organic lesion may not have extended to any extent, still, by the pressure exerted on it by the effused matters, we may assume that it is not altogether in quite a normal condition. If any structural lesion does exist, it must have supervened shortly after the hæmophthalmic affection, and if so, there would have been in all probability, an effusion of lymph within the pupil, or numerous adhesions of the iris to the capsule, or perhaps closure of the pupil, which would prevent the patient enjoying even the small amount of vision he now does. Arguing from the fact of a slight degree of choroiditis existing at this time, we may suppose that the iris is affected, and it is well known that choroiditis and iritis co-exist frequently, the choroid being

by many anatomists considered as a continuation of the iris. This again, is doubted by some, on account of the choroid not being muscular. Let this remain as it is, we are nevertheless aware, that very few well developed cases of iritis exist, in which there is not seen a very little time afterwards, choroiditis. There was some fulness of the eye seen in this case also, which we might attribute to some slight change in the state of the vitreous humour. Of course we have no means of ascertaining the state of the lens, except by judging from the vision.

The *prognosis* in this case must be in the extreme unfavorable. All our counter-irritants and absorbents will be unable to remove altogether the occupants of the anterior chamber. Blisters produced by nitrate of silver over the brow, and of emplast. lyttæ to the temple and behind the ears, have been repeatedly tried, but they have not been of the slightest avail, except in subduing inflammatory action. Calomel has been pushed to the extent of producing salivation slightly. But these remedies only conduced to shew, that the efforts tried were, and will be useless, so far as the removal of the blood and lymph is concerned, and other remedial means must be sought for to accomplish a cure, and which must have a more certain effect than those hitherto tried. But in the present state of our knowledge, we are not aware of their existence. As time advances, we may expect to find the characters of these matters changing, till they are eventually converted into pus, when, according to the symptoms that shew themselves, we will be induced to give exit to it, or be content with its remaining in the position it occupies. Latterly, mild mercurials have been given at night, and a combination of Quinine and Sulphate of iron during the day. They have not been tried for a sufficiently long time for their operation to be seen; but in the present state of the eye, their action will be confined merely to improving the constitution, and state of the digestive organs, and no more. The iodide of potassium ought to be tried for some time, after another course of mercurials. This preparation of iodine has a more powerful effect, and a more speedy one also, after the system has been acted on first by mercury.

Thus much for the state of the right eye.

The *left*, when I first saw it in August last, presented a diffused opacity of the cornea, there was a small deposit of matter at the lower portion of the membrane between its layers, which was evidently purulent, and no distinct state of the iris could be made out on account of the opaque cornea. The pupil, however, appeared indistinctly, and was very sluggish. This eye was slightly collapsed and shrunken, and had a few fasiculi of conjunctival vessels running towards the cornea, with slight thickening and vascularity of the conjunctiva at its nasal side. Occasional exacerbations of pain were complained of, both in the eye itself, and in the circumorbital region, extending across to the temple. For these occasional attacks of pain, caustic blisters were applied to the brow, which had the effect, after some time, of giving temporary relief. Later in the disease, there was observed on looking at the eye, a whitish circumscribed spot in the cornea, having its situation, as it were, within a disk. This must have been owing to the deposition in the first instance, of lymph between the proper layers, of the cornea, and its gradual conversion into pus. The disk-like form seen in such cases, is attributed by authors, to the lining membrane of the anterior chamber being inflamed, and fibrine being exuded on its surface. The posterior layer of the cornea could likewise be seen, but it had not the clear appearance it presents in a healthy state, being of a duller color, and as it were filmy. The state of the lens cannot be described, but in all probability, it continues clear.

There is not the slightest chance of the patient recovering the use of this eye, the density of the opacity of the cornea being almost irremediable : the epithelial layer seems to have been originally the seat of the disease, ulceration afterwards extending to the parenchyma of the tunic.

TO THE EDITOR OF THE MADRAS JOURNAL OF MEDICAL SCIENCE.

Sir,—The recent investigations into the nature and treatment of scurvy by Dr. Garrod have induced me to bring

forward the following cases treated in the General Hospital with success on the plan proposed by that gentleman, viz.; by the use of some *salt of potassa*. In the following cases the carbonate was employed.

W. Crearny, a seaman; R. Burn and J. Stephenson, recruits, were admitted into Hospital, each one with a large dark colored scorbutic patch situated in different parts of the leg, each patch was about the size of the palm of the hand or perhaps a little larger. The other symptoms of scurvy also were more or less present. I speak of the three cases as one, inasmuch as the whole three presented the same characters. Before I proceed further, I should state that the last named individual was admitted, not for scurvy, but for another disease of comparatively less importance. The greater part of the treatment however was directed for the cure of the scorbutic affection. The other 2 individuals were admitted with ulcers situated in the centre of the scorbutic patch.

The whole three individuals had suffered from the distressing inconveniences of a long voyage, and had received a little treatment in the way of lime juice while on board. From their own accounts it appears that they derived very little relief from this treatment.

On admission which was on the 10th July, the first individual, after a little preliminary treatment, was put under the usual treatment for scurvy. Lime juice in the form of lemonade and a good diet consisting chiefly of potatoes and mutton chops were directed to be given. Up to the 15th of August, the patient under this treatment derived very little benefit, no change had been observed to have taken place in the scorbutic patch, and the ulcer which may with propriety be called a scorbutic one, (as it was situated in the centre of the scorbutic patch,) had taken on the indolent character. He was from this date (15th August,) put on 6 grain doses of carbonate of potassa thrice daily, and the lemonade was omitted. On the 23d of August he was discharged from Hospital in consequence of being sent for by the Master Attendant.

From the day he was put under the influence of carbonate of potassa &c., he rapidly improved, the stiffness about the knee joints was totally removed, the ulcer also progressed very favorably, and the scorbutic discoloration had almost disappeared. Had the patient but remained in Hospital for one week longer, he would undoubtedly have been totally cured of his complaint.

The two other individuals were after the administration of purgatives at once put on the same quantity of the salt, thrice daily, and the diet in these cases was the common full-diet of the Hospital. These two individuals rapidly improved under its influence, and in one case no trace of the scorbutic patch was left to indicate that such a state had existed.

The other case I regret to state was obliged to leave us, on account of his having to join the depot at Arcot, we parted with him with the greatest reluctance, yet not without the conviction that had he remained a little longer, the carbonate of potassa would have completely removed the scorbutic patch.

The following table will shew the number of days they were under treatment and the quantity of the salt used.

Names.	Date of admission.	Date of discharge.	Lime juice in the form of lemonade	Quantity of carbonate of potassa used
W. Crearny.	18th July	23d August	50 pints.	℥ij & 14 grs.
R. Burn.	23d August	7th Sept.	———	℥i & 24 grs.
J. Stephenson.	22d do.	2d do.	———	℥i ———

Remarks.—Up to the present day the treatment that was adopted for the cure of scurvy was the use of lemon juice with a moderate quantity of fresh succulent vegetables when they could be obtained.

"Lime juice" Dr. Watson remarks, without making reference to the other part of the treatment, "is really a specific agent against scurvy whether it be employed as a preventive or as a remedy. It supplies something to the blood which is essential to its healthy properties." How or in what manner this

specific agent acts, of course like all other specifics is involved in mystery, and so long as it has been pronounced a specific it will continue to be used as such. The use of fresh succulent vegetables has been naturally preferred from the fact that the disease was dependent on or made its appearance when an individual abstained from the use of fresh vegetables for a considerable length of time. Their virtues as anti-scorbutics it is stated are dependent on the presence of citric acid, if not this, some other acid, but Dr. Garrod as I shall afterwards state, disputes this. Scurvy then, a disease caused by the abstinence for a considerable length of time from vegetables, is to be cured only by a *vegetable* acid; for no mention is made of a mineral acid ever being used; and that these vegetable acids, among which citric is the most prominent, are specific agents in scurvy, inasmuch as their action on this blood disease has not as yet been clearly ascertained. But the recent investigations of Dr. Garrod threw a great deal of doubt on this specific acid theory, he has carefully investigated the subject and the result of his investigations is that scurvy is not dependent on any noxious substance existing in the blood, but on the absence of an ingredient in the food, and that this is *potassa*. Now this theory admits of a very comprehensive explanation. Before a seaman gets an attack of scurvy, under what circumstances is he placed? He is cut off from all sources by which he may obtain potass, and is compelled to gratify the feelings of hunger by subsisting on a purely animal diet. Potass is a necessary ingredient of the blood, as well as of the system, and its source is chiefly from the vegetable kingdom; if then the blood be deprived of the means of obtaining this ingredient, what must be the consequence? The blood to be in a healthy condition, must have not only all its ingredients but also the proper proportions of these ingredients. In scurvy, the blood is admitted to be in a morbid state, that morbid state Dr. Garrod has endeavoured to shew depends on the want of potass in the blood. Whether this theory be actually correct or not, time and experience will shew.

To give the profession, at least that part of it in this part of the world, a proper idea of what this theory is, I cannot do better

than to enter the following propositions which form the substance of his theory.

"1*st.* That in all scorbutic diets, *potass* exists in much smaller quantities than in those which are capable of maintaining health.

"*2d.* That all substances proved to act as anti-scorbutics contain a large amount of *potass*.

"*3rd.* That in scurvy the blood is deficient in *potass* and the amount of that substance thrown out by the kidneys less than that which occurs in health.

"*4th.* That scorbutic patients will recover when *potass* is added to their food, the other constituents remaining as before, both in quantity and quality, and without the use of succulent vegetables or milk.

"*5th.* That the theory which ascribes the cause of scurvy to a deficiency of *potass* in the food is also capable of rationally explaining many symptoms of that disease."

"Both soda and potass are constant constituents of the animal body, and it appears that they are not capable of replacing each other. For example, we always find the potass to exist in large quantities in the ash of muscle, soda in very small quanties (Bergelius and Liebeg,) in the ash of the blood we find the relation reversed. It appears also that the muscular system requires the presence of potass, and we should therefore expect to find that where there is a deficient supply of this base the effect would soon be manifested in the functions of that system. This we find to be the case in scurvy. Without any amount of wasting of the body we find marked muscular debility; and this perhaps is one of the earliest symptoms of the disease."

In conclusion, Mr. Editor, I cannot but help making a few remarks on the present plan of treatment adopted for the cure of this dreadful malady. Lime juice has been used for ages, and with the greatest success, but no rational explanation as to the real nature of its action has as yet been given, in my estimation it appears to be nothing more than an impirical remedy. Granting that the success attending the use of lime juice has been very great, I would ask, has lime juice ever been given

alone and in those cases in which it was given, did it effectually remove the disease?

If it did, I do not think such a number of cases would present themselves for treatment at the General Hospital, as they at present do. As to Dr. Garrod's theory, I shall leave it to you Mr. Editor to make any further remarks about it, being convinced you will consider it in its proper light, and that you will, if it admits of any thing like truth, do justice to it and to its originator.

Hoping then, that every success will attend Dr. Garrod and his theory,

I remain, Mr. Editor,
Your most obedient servant,
R. HARVEY.

Madras, 21st November, 1853.

Secunderabad, 8th October, 1853.

TO THE EDITOR OF THE MADRAS JOURNAL OF MEDICAL SCIENCE.

SIR,—I have much pleasure in sending you the accompanying scraps, and if you consider them worth publishing they are at your service.

Death of a Fœtus from Cholera.

On the 10th of July last, a native woman about 35 years of age, was admitted into the Civil Dispensary greatly prostrated from the effects of cholera, from which she had been suffering for three days. She was also pregnant and apparently advanced to the full period, this being her fourth child. The choleraic symptoms were relieved, leaving her however in a debilitated state, and on the third day after her admission, she was seized with labour pains which lasted about 5 hours, and was delivered of a still-born child, which to all appearances was full grown, and bore marks on it indicating that life had been for some time extinct. As the placenta was retained more than an hour, the hand was introduced into the womb, and the placenta which was found adhering partially to the fundus, was gently separated, when both it and the hand were simultaneously extruded.

Remarks.—This case is both interesting and instructive, because it leads to the enquiry as to whether the child died from the effects of the cholera indirectly, that is to say, whether owing to the excessive drain from the mother the liquor amnii (a fluid which is so essential not only to the well-being of the child but also to facilitate labour,) had become absorbed and removed in the evacuations, whereby the womb was induced to contract prematurely upon and expel its contents, or whether it died from the choleraic poison circulating in its system. It leads also to the enquiry as to whether the birth of the fœtus was premature or not.

I am disposed to attribute the death of the child to the choleraic poison circulating in its system, or rather to the impoverished or vitiated condition of the mother's blood, which must have in consequence been rendered unfit for the due support and nourishment of the fœtus in utero. This opinion may be confirmed by the fact that there was no other cause discoverable that could sufficiently account for the death of the child, the labour was comparatively easy, the child presented by the head, and there was nothing abnormal in the maternal structures, in short it was a "natural labour." Her previous labours were also unattended with any difficulty, and the other three children were born alive. It has been already observed that the child bore evident marks of having been dead for some time prior to its extrusion, and there was a pretty good flow of the "waters," which occurred after complete dilatation of the os had taken place, and the labour as I said before did not last more than five hours, so that it cannot be said that premature rupture of the membranes was the cause. I may remark also that the motions of the fœtus had been felt by the mother but a very short time prior to the attack of cholera, but whether the birth of the child was premature or not is a matter of question, and I regret that I did not ascertain its weight and dimensions as I could then say with more certainty that it was not. However I repeat, that to all appearances it was a full grown fœtus with all its parts perfectly developed. I do not take the woman's statement into account, as she was rather out of her calculations herself,

and could not say whether she was advanced to the full period or not.

This case will also serve to illustrate that however debilitated the constitution may be, the tone and normal functions of the impregnated womb may yet remain unimpaired, and unless other complications exist in the maternal passages, labour is completed without any difficulty. It is a well-known fact that children have been born alive, unaided, even after the death of the mother had taken place ; shewing that the functions of organic life are almost if not altogether, independent of the will, and that the involuntary muscles retain some degree of vitality even after the body is evidently dead. In the case before us the patient was prostrated to such a degree from the effects of cholera, that her life was despaired of, and yet the uterus was found equal to its task, labour having been accomplished within a reasonable time, and without any manual assistance, at least nothing beyond what may be required to be done in a case of natural labour.

In the No. for June 1853 of our journal you gave publication to a paper containing " directions for taking impressions of the leaves and other flat parts of plants" I herewith send you another method, which if you think will be of use to the Students of Botany, kindly give it a place in the next issue.

The process is as follows. First prepare a piece of paper by besmearing one side of it with common lamp oil, then hold it with the unsmeared surface downwards over a lamp, and in contact with the flame, but in order to prevent the paper from becoming ignited it should be moved briskly about in all directions, this should be continued until a good coating of lamp black is formed on the surface of the paper, after which lay the paper on a table or smooth plank with the blackened surface upwards and place the leaf of which the impression is required (supposing a leaf is used), on it. Then place a piece of clean paper over the leaf, and gently press and rub it well with a cushion made with a handkerchief or napkin, until satisfied that the entire surface of the leaf is well coated with the lamp black. This

being done, remove carefully the leaf from between the two layers of paper, on the uppermost one of which you will find a very good print of the leaf with its outline, ridges, &c. delineated in a most perfect manner, this however is merely the negative impression (if I may so call it) as the parts are not distinctly developed. Then place the leaf betwixt other two clean pieces of paper and subject it to the same process of pressing and rubbing as before, this being done a most beautiful, perfect and indelible impression is left upon the paper as you will see by the accompanying specimens. It need hardly be said that the friction should be performed in the direction of the axis of the leaf, and a leaf half dry had better be selected, for if a green one be used the juice is apt to be squeezed out and so interfere with the process as to disfigure the impression.

I remain, dear Sir,

Your's very faithfully,

ALEXANDER BOGG.

Literature.

THE FIRST CLASS OF VERTEBRATE ANIMALS.

MAMMALIA.

The class Mammalians is placed at the head of the animal kingdom, because it is the one which enjoys the most numerous faculties, the most delicate sensations, the most varied powers of motion, and in which all the different qualities seem together combined to produce a more perfect degree of intelligence, the one most fertile in resources, most susceptible of perfection, and least the slave of instinct.

Their quantity of respiration being moderate, they are in general designed for walking on the ground, but with vigorous and continued steps. Consequently, all the articulations of their skeleton have very precise forms, which rigorously determine their motions.

Some of them, however, by means of lengthened limbs and extended membranes, raise themselves in the air ; others have the limbs so shortened, that they can employ them with effect only in water ; but they do not the more on this account lose the general character of the class.

They have all the upper jaw fixed to the skull, and the lower composed of two pieces only, articulated to a temporal bone; the neck consists of seven vertebræ; the anterior ribs are attached in front, by cartilage, to a sternum formed of a certain number of pieces placed in a row; their fore-limb commences in a blade-bone, which is not articulated, but merely suspended in the flesh, often resting on the sternum by means of an intermediate bone, called a clavicle. This extremity is continued by an arm, a fore-arm, and a hand, the last composed of two-ranges of small bones, called a wrist or carpus, of another range of bones termed metacarpus, and of digits or fingers, each of which consists of two or three bones, named phalanges.

Excepting the *cetacea*, they have all the first part of the hinder extremity fixed to the spine, and forming a girdle or pelvis, which, in youth, consists of three pairs of bones, the ilium, which is attached to the spine, the pubis, which forms the fore-part of the girdle, and the ischium, which constitutes the hind part. At the point of union of these three bones is situate the cavity with which the thigh is articulated, to which, in its turn, is attached the leg, formed of two bones, the tibia and fibula: this extremity is terminated by the foot, which is composed of parts analogous to those of the hand, namely, a tarsus, metatarsus, and digits or toes.

The head of Mammalians is always articulated by two condyles upon the atlas, or first vertebra.

Their brain is composed of two hemispheres, united by a medullary layer termed the *corpus callosum* containing two ventricles, and enveloping the four pairs of tubercles named the *corpora striata*, the *thalami nervorum opticorum*, or beds of the optic nerves, and the nates and testes. Between the optic beds is a third ventricle which communicates with a fourth situated under the *cerebellum*, the crura of which always form a transverse prominence under the *medulla oblongata*, called the *pons varolii*.

Their eye is invariably lodged in its orbit. In their ear there is always found a cavity named the drum, or *tympanum*, which communicates with the back part of the mouth by a canal termed the trumpet, or eustachian tubes: the cavity itself is closed externally by the *membrana tympaini*, and contains four small bones; a vestibule which communicates with three semi-circular canals; and a *cochlea*.

Their cranium is formed by two frontal;* one ethmoidal;

* These are united together in man but are sometimes found separate.—Ed. *M. J. M. S.*

two parietal; one sphenoidal; one occipital; and two temporal, part of which belong to the face.

Their face is formed by the two maxillary bones; two intermaxillaries in front of these and two palate bones behind: the vomer; two nasal bones; two inferior turbinated; two jugal, malar, or cheek bones; the two lachrymal; and the inferior maxillary bone. The intermaxillaries are not present in man.

Their tongue is always fleshy and attached to a bone termed the hyoid.

Their lungs, two in number, are always inclosed without adhesion in a cavity formed by the ribs and diaphragm.

Their body has only a moderate kind of tegument, the hair or fur, and even this is commonly scanty in those of hot climates.

The cetaceans, which live entirely in water, are the only ones that are altogether deprived of it.

The abdominal cavity is lined with a membrane called the peritoneum.

The urine, retained for some time in the bladder, is discharged in the two sexes with very few exceptions, by orifices in the organs of generation.

In all Mammalians, generation is essentially viviparous; in conception, the fecundating fluid of the male is thrown into the uterus of the female.

The young are nourished for some time after birth by a fluid peculiar to this class (the milk) which is secreted in the mammæ from which this class derives its name.

DIVISION OF THE CLASS OF MAMMALIA INTO ORDERS.

The variable characters which establish essential differences among the mammalia are taken from the organs of touch, on which depends their degree of ability or address, and from the organs of manducation, which determine the nature of their food, and are connected together, not only with all that relates to the digestive function, but also with a multitude of other differences extending even to their intelligence.

The degree of perfection of the organs of touch is estimated by the number and the mobility of the fingers, and from the greater or less extent to which their extremities are enveloped by the nail or the hoof.

The nature of the food is known by the grinders, to the form of which the articulation of the jaws universally corresponds.

Hoofed animals are all necessarily herbivorous, and have flat-crowned grinders, inasmuch as their feet preclude the possibility of their seizing a living prey. Animals with unguiculated fingers are susceptible of much variety; their food is of all kinds: the faculty of opposing the thumb to the other fingers, constituting what is properly termed a hand has immense influence on their dexterity. This faculty is carried to its highest perfection in man, in whom the whole anterior extremity is free and capable of prehension.

The various combinations have given rice to the following orders.

Among the unguiculates the first is MAN, who has hands to the anterior extremities only, and is supported in an erect position by his hinder limbs.

The next order, the QUADRUMANA, have hands to the four extremities.

The order CARNARIA has not the thumb free and opposable to the other fingers.

These three orders have each the three sorts of teeth, namely, grinders, canines, and incisors.

The fourth order, RODENTIA is without the canines, and the incisors are placed in front of the mouth.

The EDENTATA has no incisors; the toes are much cramped and deeply sunk in large nails which are generally curved. Some animals of this order have no canines and others no teeth at all.

This distribution of the unguiculated animals would be perfect, and form a very regular series were it not that New Holland has lately furnished us with a small collateral series, composed of the pouched animals (MARSUPIATA). In their teeth, and in the nature of their regimen, some animals of this series correspond to the *Carnaria*, others to the *Rodentia*, and others, again, to the *Edentata*.

The hoofed animals are less numerous and have fewer irregularities.

The RUMINANTIA has cloven feet and four stomachs, without incisors to the upper jaw.

All the other hoofed animals compose the order called PACHYDERMATA or JUMENTA, the *elephant* excepted, which has some distant relation to that of *rodentia*.

The last order is composed of those which have no posterior extremities, and whose mode of life is aquatic, the CETACEA.

THE MADRAS JOURNAL OF MEDICAL SCIENCE.

"I hold every man a debtor to his profession from the which as men doe seek to receive countenance and profit, so ought they of duty to endeavour themselves by way of amends to be a help thereunto"—Lord Bacon.

Selections.

The Blood—its Chemistry, Physiology, and Pathology. By Thomas Williams, M.D. Lond., Extra-Licentiate of the Royal College of Physicians; formerly Demonstrator on Structural Anatomy at Guy's Hospital, and now of Swansea.

The fluids and the solids in all biochemical inquiries should rightly be studied in conjunction. They interblend, substantially and dynamically, with such intimacy, that to indicate a partitional boundary were to divorce what nature has united. They reciprocally cede and accept. They mutually act and react. Fluidity and solidity are the first conditions of all organized matter. The aëriform state has nowhere a single illustration. Every gas must become a fluid as the fundamental term of union with the elements of the living body. The fluid is the active condition; the solid, the passive. The latter is sedentary; the former, locomotive. The former is the scene of rapid molecular transformations; the latter is distinguished for its stability: between these two extremes there exist manifold intermediate conditions. In the category of the nutritive fluids, unmixed fluidity is not known: solids are introduced. Fluids are not self-productive; they require either the direct or the catalytic agency of solids. The fluids even of the vegetable organism bear floating corpuscles. In the vegetable economy, it has hitherto been falsely supposed that the cells of the fixed tissues traversed by the fluids effect that change which, in the instance of the animal fluids, is accomplished by the self-borne corpuscles. The formative capacity of a fluid, in the abstract, is limited to a low standard. Albumen cannot mount into the condition of fibrine in virtue of any self-originated and self-sustained inherent molecular activity; the agency of a third body must be interposed. This is the "doctrine of the schools."

The blood is a wondrous epitome of fluids and solids. In complexity of composition it has no parallel. He who would resolve it into its components, must in himself unite the qualifications of the chemist and the microscopist, the anatomist and the physiologist. The chemistry of organized beings has now assumed the exalted rank of a rich and varied science. The microscope, at first a costly toy, has grown into its inseparable handmaid. Micro-chemistry is opening upon the mind like a vast panorama, opulent in wonders and boundless in limits. The microscope conducts the eye to the confines only of visible form; the formless eludes its scrutiny: it is, emphatically, an instrument fitted to define the geometric properties of bodies. Into the world of fluids it cannot penetrate. Fluidity is a condition of matter which it cannot appreciate. Of solids, it takes cognizance only of the state of quiescence; it does not reveal the "forces" impelling them to activity; it is an apparatus of inquiry into the statics, not the dynamics, of matter. In micro-chemical inquiries, its peculiar value consists in empowering the eye to read and register the changes of form and colour wrought by test-fluids upon solids: the knotted tangle of a multiplex compound is thus gracefully unwound; it is in this elegant manner that the mind arrives at a knowledge of the chemical constitution of bodies—even those so minute in mathematical dimensions as to occupy the remote frontier-line which divides the fluid from the solid state, the extreme verge of morphological substance.

From the arena of zoochemical research, in these unsuperstitious days, all substanceless divinities must be exterminated. The era of the *anima mundi* has become historic. The "essence of life," *vis vitæ*, *vital principle* (Prichard); *nisus formativus* (Blumenbach); *organic force* (Müller); *organic agent* (Prout); *vis medicatrix naturæ* (Hofman and Cullen); now number amid the effete jargon of an extinct nomenclature. The "illuminating orb" of a new mental life has arisen above the edge of the eastern horizon. "Abstract terms" are as luring as "golden calves;" they demand the homage of believers. The "*principle* of motion," the "*principle* of gravitation," the "*principle* of attraction," are the relics of an entombed terminology. The "*life*" of the blood is an ontological expression which belongs to a former phase of science. No *divinæ particula auræ* swims in this fluid. Modern philosophy displays a tendency to refer all phenomena to the *laws* of matter—*directions* of action first implanted by the Deity. A "law" in its ontological sense is a *deus ex machinâ*; it sounds as though endowed with an existence distinct from the body—as something superadded to the organism—like magnetism to iron, heat and light to a luminous body (*sic*). The word "*principle*" is characteristic of a less advanced state of science; it should *now* be used only as the final letters of the alphabet are employed by the algebraist—to denote an unknown element, which, when thus indicated, is more conveniently analyzed. It is customary, even now, to speak of the "principle"—the agent, of heat, light, electricity, magnetism, gravitation, &c.—as sig-

nalizing severally the undermentioned causes of familiar phenomena. When these phenomena, in the progress of science, fall under a more just interpretation, they come to be referred to the primary properties of matter; they then may be deduced by demonstrative reasoning, like geometric theorems from the postulates on which they are founded. But in the science of physiology the term "law" has been employed in a less justifiable acceptation; a "principle," a "force" has been personified, and invested with a spontaneity of action. As an expression descriptive of the "conditions," the "circumstances" under which the actions and reactions of the material elements of the organism originate and proceed, it may be tolerated as a convenient phrase; the physiologist, however, idolatrously animates it with a creative and directive power, in virtue of which it acts upon matter, removing its particles from the pale of physical and chemical laws, transforming them into organized tissue, endowing these tissues with novel properties, prompting them to action, opposing resistance to injurious influences, defining the cessation of these acts of the organic body as synonymous with the departure of the "vital principle." A "law" ought not to be defined as altogether resident in the mind of the observer. The mind only links certain acts into a certain order of occurrence; this *order of occurrence* is coeval with matter; it moves, "displays its forces," "exerts its energy," only in a given direction. This *mode* of occurrence is the *law*; it is the final impress of the will of Him who made matter; it is an ultimate fact beyond which philosophy cannot penetrate. The task of the organic chemist, then, lies not in a search after an *ignis fatuus*, a *vital principle*; he is required only to define the terms of events, the conditions of phenomena, as they occur in the living organism. *Words* must be used to indicate events. The exigencies of language will oblige the use of such expressions as vital force, chemical force, affinity, property, &c. It will, however, be now understood within what latitude such expressions are to be limited.

Two new ideas have recently taken birth in science. The mutual convertibility of the "forces" is an accepted doctrine, and the transmutability of matter (Dumas, Faraday) is no longer held as an alchemic extravaganza. The facts of allotropism, established by the genius of Schönbein, and the late prophetic speculation of M. Dumas* on the chemical, electrical, and mathematical *progression* traceable through the properties of isomeric or conformable bodies, awaken in the mind of the modern chemist a reverence for the disentombed manes of alchemy. The transmutable bodies group themselves in nature in triads, or ternary series, thus: chlorine, bromine, and iodine; sulphur, selenium, and tellurium; calcium, strontium, and barium; lithium, sodium, and potassium. The members of these triads, severally, are capable of replacing one another in chemical compounds. "When three bodies having qualities precisely similar, though not identical,

* See Chemical Record, July 12, 1851; and Lectures on the Non-Metallic Elements, p. 160, by Faraday.

are arranged in succeesion of their chemical powers, there will be also a successive arrangement of mathematical powers, indicated by the respective atomic numbers of the substances, and amenable to every mathematical law." "That this symmetry of chemical with mathematical function points to the possibility of 'transmutation' is unquestionable, yet not transmutation in the sense of the old alchemical philosophy." Chemists see no manifestations of a tendency of being able to convert lead into silver, or silver into gold. These metals are not chemically *conformable*; one cannot take place of another by substitution; they do not form an isomeric group.

The preceding illustrations are drawn from inorganic bodies. Chemists have long believed that certain *organic* compounds display, in their properties, a close resemblance to metals. Of this kind are the three organic radicals—

$$C_2\ H_3\ O$$
$$C_4\ H_5\ O$$
$$C_6\ H_7\ O$$

which may be regarded as the three several oxides of an isomeric triad, bearing analogy to those already adverted to in the inorganic world. With reference to these radicals (omitting the oxygen) it is found, as in the case of the inorganic triads, that the sum of the atomic weights of the extreme bodies divided by two is equal to that of the intermediate body.

The discovery of allotropism has bereft these speculations of impossible extravagance. The allotropic modifications of which sulphur, phosphorus, oxygen, and carbon, are susceptible, suggest the thought that the countless array of organic compounds which now bewilder the chemist, may prove only modified forms of one unchanging radical. Like those of isomerism, the phenomena of allotropism inspire the zoochemist with new hopes.

Solidified albumen and fibrine are allotropic conditions of liquid albumen and fibrine. Physically the former differ remarkably from the latter, chemically they are identical. "There was a time when the doctrine which supposed the convertibility of metals was opposed to known analogies; it is now no longer opposed to them, but only some stages beyond their present development." (Faraday.) These discoveries have been accomplished, not by the magic touch of the philosopher's stone, but by the touch of genius.

Coincidently with these recondite speculations as to the transmutability of *matter*, have been projected novel thoughts as to the "mutual correlation and convertibility of "*forces*." (Grove.) Heat, light, electricity, magnetism, motion, &c., are severally interproducible "forces." (Faraday). "Vital action," cell-growth, nerve-force, muscular-action, *are the* physical imponderable forces modified in manifestation by passage through an organic material substratum. (Carpenter.) Heat

becomes vital force by passing *from* without *into* the egg. Such expressions imply the locomotion of an entity. Against the vague use of this hypothesis-involving-language, the student of organic chemistry should jealously guard. He must be warned once more, lest he confound the *ego* with the *non ego*—the conditional with the absolute and unconditioned. All general ideas are born of abstraction. They should be permitted in science only as intellectual guides. The "forces" of matter are the "properties" of matter. The quality cannot be separated from the body. The word "property" in chemistry should be accepted in a phenomenal, not entological sense. The dynamics of matter cannot be studied apart from the statics. Though, however, the student be warned against the idolatrous worship of all bodiless essences; though it be affirmed that the physical philosopher is in pursuit, not of fictions, but facts, not of subjective creations, but objective realities, it must be understood that the intellectual "aid to pursuit" to be drawn from an intelligently conceived theory is not to be contemned. A "theory" is not an illusive palace raised by fancy; it assists in two ways; it guides the mind in the marshalling of novel phenomena under known analogies—and it dictates method, suggests conditions, devises experiments. It ought not to trammel the freedom of research, nor circumscribe the range of just speculation. It is a mental light, an intellectual instrument of inquiry. It is the bright path projected by forethought into tracts of research yet unsurveyed by the eye of science, and uncatechized by experiment.

"Chance" may have imparted motion to the classic chandelier in the Cathedral of Pisa; but if chance also suggested to Galileo the laws of the pendulum, it must have belonged to that multitudinous order of casualties by which ideas are ordinarily propogated in fit and fertile minds. Theoretic provisions had qualified the mind of the philosopher to evolve an immortal principle out of an accidental event, to generalize a "law" on the basis of an accident. "Facts," uninterpreted by "theory," are inert, incoherent verities.

A *vital fluid* is different in no single particular from any cosmical compound fluid. The constituent elements of an organic fluid completely inter-blended in the living organism, manifest the same laws and the same properties with those distinctive of them while yet within the region of inorganic matter. In the body they acquire no *new* properties. The *old* are only modified, intensified, neutralized, co-ordinated with, or subordinated to, "conditions" of action known nowhere but in the living body. An organic substance may be composed of five different elements. Each element may be present in a great number of equivalents. The number of the elements added to the number of equivalents explains the complexity of organic compounds:—thus,

	Carbon. Atoms.	Hydrogen, Atoms.	Nitrogen. Atoms.	Sulphur. Atoms.	Oxygen. Atoms.	Total. Atoms.
Albumen..	216	169	27	2	68	482
Cascine ...	288	288	36	2	90	544
Fibrine.....	216	169	27	2	68	482

A "force" exerted in *one* direction—i. e., between *two* elements—unites them in the closest and strongest manner. The result is a compound which is gifted in the highest degree with the power to resist the causes of perturbation. To this compound if one more element be added, the uniting force is reduced to one-third—it is now exerted in three different directions; if a fourth constituent be added, each line of force will be four times less than the sum of the power by which the first two elements were joined. If this reasoning be prosecuted to the limit of 500 atoms, it admits of no doubt that the power will remain the same in *nature*, though multiplied in *directions* of action. The centre of force remains unchanged, though the radii therefrom may diverge to numerous points of an embracing circumference. Where, then, is the limit to be inscribed between vital and cosmic chemistry, between organic and non-organic affinity? Is it at 8, or 10, or 20, or 500 equivalents? Is it at the fifth element, or the fiftieth? Is it at carbonic oxide (C_2 O_2=28) and cyanogen (C_2 N=26), or at starch (C_{12} H_{10} O_{10}) and sugar (C_{12} H_{11} O_{11})? Where between oxalic acid and those composite products containing sulphur and phosphorus, can the chemist mark the bound beyond which the physical force does not ascend? In the formation of chemical compounds, "organic principles," it is quite certain that the supposed line cannot be drawn which is said to divide physical from vital affinities. Thus, then, the instability, the ready decomposableness, of organic compounds, is a property which flows from the multiplied directions in which the uniting power operates upon the constituent atoms. In an atom of sugar the attraction radiates in 36 different lines—in one of olive oil, in many hundreds. But this denotes merely a difference of *number* in the combining elements. Is there no difference of *kind*, of arrangement? Without adding or withdrawing any element, we may conceive the 36 simple atoms of which the atom of sugar consists to be arranged in a thousand different ways; with every alteration in the position of any single atom of the 36, the compound atom ceases to be an atom of sugar, since the properties belonging to it change with every alteration in the manner of the arrangement of its constituent atoms. It will be subsequently proved that whatever may be the groupings of elementary atoms, no *new* force will be required to explain their altered disposition. There is, however, in the study of organic structures, a point at which the evidences of a *new* power are encountered. It is in accordance with analogy to suppose that albumen, fibrine, gelatine, &c. owe their formation to the play of purely chemical affinities. The power which moulds a cell, configurates a fibre, shapes the tubularity of a vessel, transcends the conceptions of the pure chemist. It cannot be experimentally catechized, it cannot be imitated by any artificial arrangement. It is a force *sui generis*. The corpuscles of the blood assume the discal figure, not mechanically, in virtue of a rotatory or elliptic motion like the planets in the orrery. In the latter case the *figure* may be predicated from a calculation of the attractive and centrifugal forces. The oblate spheroid is a *necessary* figure. In the attempt to

explain the *form* of organized solids, all mathematical and mechanical conceptions utterly fail. Wherefore the discoidal shape of the blood-cell? Why the elliptical in the fish? *This is the vital force*; chemistry compounds the materials, vitality chisels them into form. Chemistry unites the elementary atoms into composite groups; vitality utilizes these compound groups, and no other, in the fabrication of the solids. The floating cells are the only parts of the fluids which, in this sense, exhibit the evidences of a vital force. The hæmatosine and globulin and cell-walls are chemical products. "Vitality" gives to these products a special arrangement; but no other "principles" could be shaped, even by the vital force, into corpuscles. It requires conditions of action as well as every other force. There is, therefore, some mysterious relation between the *shape* and the *substance*, between the *material* and the *form*. The cells of the blood, though the constructive principles were provided, can be formed no where but in the blood —no other locality offers the required conditions. Muscular fibre can only be formed out of previously prepared compounds, and *then* only in a particular place. Thus obviously governed by "conditions," the vital force, as much as any other force, becomes a legitimate object of investigation. Allied intimately to the chemical force, it discovers a mechanical and mathematical mode of operation. In this inquiry the difficulty has hitherto proved insurmountable, of ascribing effects to their true causes—of explaining the share which belongs to each "force" in the arrangements which constitute life.

The organic *fluids* fall exclusively under the dominion of chemical laws. Under chemical circumstances, the atoms of bodies are more inclined to unite in simple than complex numbers. These combinations are always regulated by definite proportionality. Organic compounds do not always obey this law. The union of mineral bodies with organic principles is often governed by no proportionality. Phosphate of lime in union with osteine is regulated by no limits. It is possible to separate a large part of the non-metallic element contained in the protein compound without destroying the distinctive characters of the principles. It is not yet certain whether these elements in albumen and fibrine are chemical or mechanically mixed. The protein compounds have not yet been separated and demonstrated in a chemically pure state. Albumen is intimately blended with the salts of soda. That they are chemical compounds *at all*, cannot, in the present state of organic analysis, be affirmed with confidence. The elements may be held in union by a homogeneous, not heterogeneous force. They may yet prove to consist of peculiar mixtures, rather than chemical compounds.

In the arena of organic chemistry the *elementary bodies*, as such, enact only a subordinate function. Oxygen, in its unmixed form, cannot be "organoleptically," histogenetically, employed under any circumstances. Nature fabricates with compound atoms, not with simple. The simples first unite to build compounds—*then* they are qualified. The composite atoms react upon composite atoms, and these upon

others. With each complication the chemical force is replaced more and more by another, which undoubtedly *grows out of, is directly developed from*, the former. *Chemical* force is inversely as the atomic weight; *vital*, directly. This is a beautiful generalization. The chemistry of organized beings is the chemistry of compound bodies, not of simple. The solids can only be constructed by means of compounds. In the fluids the *elements* are arranged into compounds. The chemistry of the fluids concerns itself chiefly with mineral bodies and their unmodified properties, that of the solids exclusively with peculiar compounds. The individual atoms of bodies are *in motion* in the organism from the instant of entrance to that of exit. The momentum acquired by such a motion impels them to that *mode* of union which is distinctive of organic substances. Vital force appears thus as the higher evolution of the chemical. Whether, with Newton, Guyton, Morveau, and Buffon, chemical affinity be regarded as due to "universal attraction;" or with Berthollet, to an attraction of a "peculiar nature;" or with Berzelius and Sir H. Davy, to the electrical properties of bodies,—it is certain that chemical substances unite and disunite, move and fix themselves, *in* the organism and *out*, in obedience really to the same laws.

The fluids of the higher animals are more complex than those of the lower; the solids are so also. The non-proportional constitution of albumen, as will afterwards appear, favours the ready renewal of the fluids in the case of the lower invertebrata. In the blood of the higher animals, albumen, fibrine, and the oils, by endowing this fluid with a thickness and viscidity, diminish the rapidity of molecular movements, and the freedom with which, if swayed only by their chemical affinities, the mineral constituents would interchange places. *Viscidity* becomes thus a mechanical condition capable of imparting a certain measure of permanency and stability to the composition of the blood. This quality is due much more to the fibrine than to the albumen. The fluids of the lower invertebrata are almost entirely devoid of fibrine; they are much thinner, less viscid, and of far lower specific gravity. The lower animals *live faster* than the higher; the operations of life are more rapid, and briefer in duration. Complex compounds demand for their production more time than the simpler. Hence the harmony between the physical characters of the organic fluids respectively in the lower and higher animals, and the *rate* of the nutritive operations, the durability of the resulting products, and the "term of life."

Organic fluids differ from inorganic in a marked manner in the greater frequency of the phenomena of contact or catalysis. A feeble acid will change starch into glucose; it excites without participating in this mutation. Hydrogen and oxygen left to themselves, even in presence of strong sulphuric acid, will not combine—spongy or leaf platinum will instantly initiate that combination; this is a phenomenon of simple contact, catalysis. Pure sugar in solution will remain unchanged—added, dilute sulphuric acid, it appropriates water in the

proportion required to form glucose; the acid remains unaltered. Caseine or gluten placed in a solution of glucose, the latter will transform itself into lactic acid, without taking anything from the former. Sulphuric acid mixed with alcohol produces sulpho-vinic acid—*this* distilled, gives ether and sulphuric acid—the acid is unchanged; this is *not* catalysis (Liebig); the acid takes a chemical part in the process.

All azotized substances exposed to the air will absorb oxygen, and reject carbonic acid; if mixed with sugar in solution, the latter will be transformed into alcohol and carbonic acid; the azotised matter in a state of change cedes nothing *material* to the sugar—but to its atoms it gives *motion*. Berzelius contends that the passive contact of the ferment initiates the fermentation; Liebig holds that the motion of the atoms of the ferment propagates itself to those of the fermentescible body. Catalytic excitants may cause the union as well as the *dis*-union of elements. Oxide of silver *de*composes per-oxide of hydrogen; platinum determines the *com*bination of oxygen and hydrogen; the word catalysis is, therefore, not strictly applicable. Faraday has recently projected the splendidly simple thought, that the part of the catalytic agent is really electrical; it acts as a conductor of electricity between the two uniting bodies; thus in science has genius dissipated another arcanum. The theory of catalysis finds frequent illustration in the metamorphoses of organic compounds; its application will be hereafter shown.

The very essence of zoochemistry may be thus stated *in summa, like produces like*—organic principles produce organic principles. This may be called homologous catalysis; organized beings do not, cannot create, they cannot transmute elements: they can only undo, make anew, construct compounds out of pre-existing simples. The vital fluids, unlike inorganic solutions, never subside into the quiescence of chemical and molecular equilibrium; the union and disunion of the elements are ceaseless; the play of affinities is complexly various; the blood is, nevertheless, an organic unity. No single element can be withdrawn without destroying that unity. Then how is this wonderful fluid to be studied? If dried and burnt in total substances, and the ultimate products collected and weighed, the whole might readily be tortured into the fantastic shape of a chemical equation; or by an analysis less extreme, all the bases, and acids, and organic compounds, might first be determined, and then an empirical formula might be constructed, expressive of their relative positions: little advantage would result from either of such methods. An exclusively chemical or analytic investigation will prove alike unproductive; the purely physiological is no less inadequate; assistance must be drawn from both departments of study. The inquiry, then, must embrace the following questions:—1. What are the *elements*? 2. What are the *groups* which are formed by the union of these elements? 3. How are these groups (compounds) related among themselves? 4. *How* and where do they become parts of the solids? 5. In what manner

do they return into the current of the fluids, and finally escape as *excreta*?

It is indispensable to the intelligent pursuit of this inquiry, in this place to demand by what *names* are the constituents of the blood to be distinguished; their *chemical* designations will of course remain; but is albumen to be called an "element" or a "principle"? An element is an undecomposable, indivisible substance. Albumen, though a chemical compound, is an organic atom; take *any* part away, and it ceases to be albumen. Is oxygen a "principle," or an "element"? It is no real part of the blood until it enters into chemical union with some one of its constituents; it must surrender the gaseous and assume the fluid form. In the state of gas, it is literally an extraneous body; it is only in readiness *to be* used; it nowhere constitutes an anatomical part of an organized substance; it is in itself nothing; it must first merge its individual properties in those of the compound of which it is to form an element; it enters into chemical union with almost every constituent of organized beings. But is it, because it can be detached again by violent means, extracted with all its original properties, to be called a "principle"? If it be denominated a "principle," it will lead to endless confusion to call also a "principle" the compound, of which it is but an element. What is sulphur out of its place in the protein compounds, whether there oxidized or not? How different its organic value in the sulphates! What is nitrogen out of its position in the azotized groups? In the language of Chevreul* it would be called a "*mediate* principle," and the compound into which it enters, an *immediate* principle. In the recent work of Robin and Verdeil,† these acute authors distinguish both the element and the compound as "*immediate principles.* On what ground? On that, that *all* substances which can be extracted from the animal body "without decomposition," are entitled to be classed as immediate principles! Thus the chemically undecomposable, and the organically undecomposable, are alike to be called "immediate principles!"

Oxygen is not a histogenetic substance, it expends its force upon the fluids. Here the organic compounds are formed, from which the solids are afterwards constructed. These observations apply with undiminished force to the *salts* concerned in the production of the organic compounds. Let it be supposed that oxygen, hydrogen, nitrogen, and carbon, were so grouped as to form an "organic radical;" it could not exist as such in its pure and unmixed state; it must be fixed either by chemical union or mechanical alliance with an inorganic body. Lime is united to osteine in the bones; potash to musculine in the muscles; soda to albumen in the blood; phosphorus to neurine in the

* Rèchercheś sur les Corps Gras d'origine Animale. Paris, 1803; and Considerations sur l'Anat. Organique. Paris, 1824.

† Traité de Chimie Anatomique et Physiologique Normale et Pathologicale, &c. Paris, 1853. Though I may lament the diffuse verbosity of this work, I would yet signalize it as one which I have studied with the greatest advantage. Less cautious than Lehmann, in their very original work Robin and Verdeil discover more genius.

brain, &c. The living body is thus not only "a superstructure of physics on chemistry" (Arnott), it is a fabric raised of organic compounds on the basis of mineral bodies. Then, are the elements, oxygen, hydrogen, carbon, and nitrogen, which constitute the very substance of a protein-compound, the compound itself, as well as the mechanically allied mineral body, indiscriminately to be ranked as "immediate principles"? Are creatine and urea, which are *out*going, and albumen and fibrine, which are *in*going substances, alike to be termed "immediate principles"? Is the answer, that they acknowledge a diversity of source, that they discover differences of properties, and tend towards unlike destinations, of valid avail? What in the living organism is *not* of mineral origin? Is the oxygen inspired, in breathing, directly from an inorganic source forbidden to form part of the protein-compounds in the blood? If not, why should not the albumen of the serum be indicated as a "principle of mineral origin"? It is augmented by an element immediately drawn from without. Oxygen, hydrogen, nitrogen, and carbon, are really the only elements essential to the production of "organic principles." The acids, the earthy and alkaline bases, and the non-metallic bodies, are accessory, though important constituents.

Let, then, the word "element" retain its legitimate chemical signification; let the oxides, acids, and salts be denominated "mineral compounds;" and let all adipose and nitrogen products—whether progressive or regressive; whether crystallizable or not—be ranked in the chapter of "organic *principles*:" what, then, does the blood contain?

1000 *parts of blood-corpuscles contain*	
Water	688·00
Solid Constituents	312·00
Specific gravity 1·0885.	
Hæmatin	16·75
Globulin & cell-membrane	282·22
Fat	2·31
Extractive matter	2·60
Mineral substances (without iron)	8·12
Chlorine	1·686
Sulphuric acid	0·066
Phosphoric acid	1·134
Potassium	3·328
Sodium	1·052
Oxygen	0·667
Phosphate of lime	0·114
Phosphate of magnesia	0·073

1000 *parts of liquor sanguinis contain*	
Water	902·90
Solid constituents	97·10
Specific gravity 1·028.	
Fibrin	4·05
Albumen	78·84
Fat	1·72
Extractive matters	3·94
Mineral substances	8·55
Chlorine	3·644
Sulphuric acid	0·115
Phosphoric acid	0·191
Potassium	0·323
Sodium	3·341
Oxygen	0·403
Phosphate of lime	0·311
Phosphate of magnesia	0·222

This tabulated view of the quantitative relations of the principal constituents of the blood is founded upon the analyses of Lehmann* and Schmidt.†

All the constituents of the solids must once have existed in the fluids: the analysis of the former would not, however, express the composition of the latter. In the solids, the organic and inorganic compounds enter into different and new combinations. Though in ultimate analyses these two parts of the animal body present a striking resemblance, in proximate they widely contrast. Many of the saline compounds discoverable in the living fluids exhibit the same properties here as in lifeless solutions; they obey the same chemical affinities. The chlorides of sodium and potassium; the carbonates and bicarbonates; sulphates and phosphates of lime, soda, potash, magnesia, and ammonia, though always in solution while in the organism, may yet be separated from the fluids by crystallization and volatilization. That chemical or organic compound which admits of extraction by either of these proceedings *without* decomposition is entitled to rank as a component "principle" of the fluid or solid from which it was derived. With Robin and Verdeil it is important to distinguish between those bodies which are drawn ready-formed from external sources, from those which are products of the chemistry of the body; to the latter class belong the urates, hippurates, lactates, oxalates, isonates, pneumates, creatine, urea, sugar, &c. They exist only in organized bodies, to the agency of which they owe their formation, and from which many of them are rejected externally, while others are resolved into their elements while yet in the organism; they sink by decomposition into simpler and simpler bodies; they are on their passage out of the organism.

The living fluids comprehend another class of constituents, to the presence of which the former owe their distinctive qualities—viz., albumen, fibrine, and the fatty principles. It is from these that the organic bases of all the solids are derived; osteine, musculine, globuline, cartilagene, &c., are really the former, modified by altered chemical conditions. In the organism they exist in the fluid or semi-solid form; they are neither crystallizable nor volatile without decomposition; in chemical composition they are non-proportional; they constitute the essential substance, or material substratum, of all organized bodies; organized beings alone offer the conditions essential to their formation. The act of solid nutrition may be almost defined as that of the transition of these principles from the fluid into the solid state.

Under the head of the fatty principles of the fluids will come hereafter to be examined the saponifiable fats (margarin, olein), the phosphorized or non-saponifiable fats, and cholesterine and serolin. The analyses of Becquerel and Rodier have proved that these exist in the

* Physiological Chemistry, translated by Day, vol. ii. p. 160.
† Characteristik der Cholera, quoted by Lehmann.

blood. Berzelius has shown, what Lehmann has confirmed, that the phosphorized fats (analogous to the glycero-phosphoric acid discovered by Gobley in the yelk of egg) accumulate principally in the blood-cells. The cells of arterial blood are poorer in fat than those of venous. Fat also exists in the liquor sanguinis, united intimately but mechanically to albumen and fibrine. In the fluids of the invertebrata the adispose elements are present in far greater relative amount than in those of vertebrated animals. Professor Quekett has affirmed the general principle, that the "adipose cell" does not exist in invertebrate animals. Neither of the solids nor of the fluids is this quite true. The floating cells abounding in the chylaqueous fluid of the acalephæ, echinoderms, and especially of the annelids, are *chiefly* laden with fat; they *secrete fat* as literally and obviously as the liver-cells of the cod. "Fat certainly does exist in insects, crustacea, and mollusca, but no true adipose cell is ever present; it could not be nourished without its accompanying bloodvessels, and these are not found in invertebrata. The tissue resembling adipose tissue usually belongs to the liver or other glandular organ, and the fat exists in its cells in the form of oil."* From this passage it is evident that Professor Quekett has incorrectly observed and erroneously interpreted the mechanism of nutrition in the invertebrated animals; in them the solids are penetrated and pervaded as intimately by the fluids as in the example of the vertebrated animals. The adipose tissue in insects is bathed and traversed by fluid; the walls of these areolæ *secrete* the fat from the circumambient fluid; though they do not constitute "*closed* cells," they notwithstanding perform the functions of adipose cells; but it is quite extraordinary in what abundance the adipose principles accumulate in the *hepatic* cells of the invertebrata! If these cells were found floating in the fluids they would be undistinguishable from those morphic elements which form the normal constituents of the latter. Fat, then, enacts a constant and prominent office in the secernent agency of cells, alike fixed and free, in the invertebrata. Upon the basis of these facts, developed under the guidance of logical analogy, the argument may be reposed which contends that the cells of the blood, though not sedentary, should physiologically rank as true glandular agents. In the invertebra, fat is transferred in great part from the solids to the fluids—*fibrine* and its modifications from the fluids to the solids. Schultz and Schmidt have recently supposed that fibrine occurs as a *separate* principle in the following manner: "As the blood escapes out of the body, an acid albuminate of soda which is dissolved in it becomes disintegrated into its component parts in such a manner that a less acid, neutral or basic albuminate of soda remains dissolved, while the other atom of albumen separates under the form which we name fibrine, and fibrine subsequently contracts to the smallest possible volume—just as freshly-precipitated silica, alumina, and phosphate of lime, gradually con-

* Lectures on Histology, by Professor Quekett, p. 182.

tract."* The researches to be subsequently noticed in these papers will constrain the physiologist to adopt one of two conclusions: either that in the fluids of the *lowest* invertebrata fibrine has no existence as a separate principle, or that, on the hypothesis of Schmidt, those chemical conditions do not occur on which the separation of fibrine as such from the fluids depends—a conclusion which implies that fibrine and albumen are essentially identical bodies.

Insurmountable difficulties will oppose the study of albumen as a "principle" isolated from the saline ingredients of the serum. They are inseparably united; they accompany one another in their respective physiological acts. Scherer has shown that the apparent properties of albumen vary according to the different proportions of alkali or salts with which it may be combined, the organic group of atoms in the albumen remaining unchanged. The neutral, basic, and acid albuminates of soda are marked by differential chemical properties. The several forms in which albumen coagulates will be found to be due to the varying amount of alkali with which it may be combined. Albumen stands in a far more intimate relation to the floating solids of the fluids than any other principle. It is *never* absent; it plays in the chemistry of organized being a primary and fundamental part. Albumen is remarkable in this respect,—that it is capable of entering the blood of even the higher animals unchanged by the agency of the gastric chemistry. Albumen-*peptone* is more like albumen than fibrine-peptone is like fibrine. To this fact extreme interest will attach in the study of the origin and composition of the nutrient fluids of the inferior invertebrata.

The *mineral* constituents of the *serum* of the nutritive fluids occur in the animal kingdom under remarkable diversities. In those inferior animals in which the circumfluent element is admitted *directly* into admixture with the nutrient fluid, the saline ingredients of the serum are identical with those of the surrounding medium. In the blood of the vertebrata the phosphates and potash salts predominate in the corpuscles—the soda salts, and especially the chloride of sodium, in the serum. The alkaline sulphates and carbonates exist in simple solution in the water of the serum. In the blood a considerable amount of carbonic acid exists in combination with alkaline bases. The methods of analysis used by Professor Rose have led him to the conclusion that the various compounds of sodium, potassium, calcium, iron, phosphorus, and sulphur, exist pre-formed in the organic substances in an *unoxidized* state, and take an important part in their metamorphoses. The carbonate and phosphate of lime are important ingredients in the fluids of the invertebrata. The polypidoms of the Polypifera, and the shells of the Mollusca, are composed almost exclusively of carbonate of lime; the calcareous casing of the crustacea, on the contrary, are formed as exclusively of the phosphate. It will be interesting, subsequently, to ascertain whether the fluids respectively in these classes present corresponding diversities.

* Lehmann's Physiological Chemistry, vol. ii p. 196.

The ash of all animal fluids abounds in the *phosphate of magnesia*: it is present in large quantities in the cerealia; hence its predominance in the blood of the herbivora. The intestinal concretions of herbivorous animals are composed of this salt. In the horse they consist of the triple phosphate. Like carbonate of lime, the functions of phosphate of magnesia in the organism are probably mechanical.

Chloride of sodium is an important constituent of the blood. To this salt albumen owes much of its solubility. It is capable of impeding the coagulation of fibrine, and of acting as a solvent for caseine. Distinguished from other inorganic bodies, its combinations are regulated in the organism by definite proportionality. Its proportion in the blood, under normal circumstances, is *constant*; in disease it varies. It is the source of the hydro-chloric acid of the gastric juice. Boussingault has determined that the presence of this salt in the blood facilitates the deportation of excrementitious substances from the body.

The *alkaline carbonates* abound in the blood. In that of the higher animals those of soda preponderate; in the lower, those of lime. The bicarbonate of soda is capable of exerting a special power over albumen, augmenting strikingly its solubility—of impeding the coagulation of and chemically dissolving fibrine. Soda supplies a base for the acids formed in the fluids. The carbonates do not reach the blood as such; they are formed from the lactates. Upon their presence chiefly depends the alkalinity of the blood. This property of the nutritive fluids knows no single exception in the animal kingdom. The fluidity of the blood flows from its alkalinity; the walls of the bloodvessels are impermeable to an albumino-alkaline fluid. The free alkali acts as a resistance to many causes which, in the absence of the alkali, would coagulate albumen. Liebig has proved that the more alkali the blood contains, the higher the temperature at which albumen coagulates. The oxides of iron, and other metallic oxides, are rendered readily soluble in the blood by the action of alkali. The latter also exert upon the former the extraordinary influence of depriving them of their characteristic colours, such that a perfectly transparent solution results. This interesting fact explains the *colourlessness* of the fluids of the invertebrata. To this rule the blood proper of the annelida *only* is exceptional. The chylaqueous fluid of zoophytes, acalephæ, echinoderms, and annelida, contain iron; they are yet devoid of every trace of colour. The blood of molluscs and crustaceans is perfectly transparent; it yet affords ready indications of the presence of iron. In the *fluids* of the invertebrata, it may be stated as a rule, that the metallic oxides and their compounds exist under a colourless form; the cells of the *solids* exclusively are endowed with the pigment-forming power.

The blood of the vertebrate animal contrasts with that of the invertebrate in the abundance of its hæmatosine. This is the most palpable difference; other less striking, but not the less essential distinctions, divide the fluids of these two great kingdoms. One may be here stated by anticipation: in the fluids of the invertebrata, *one* order

of floating corpuscles only exist; in the blood of the vertebrata, *two* are readily distinguishable.

The free alkali of the fluids serves also to promote the combustion of organic compounds, which in its presence acquire a power of combining with oxygen, a property which they do not possess at ordinary temperatures; thus, milk-sugar and grape-sugar, in presence of a free alkali, and with the aid of a gentle heat, deprive even metallic oxides of oxygen. It is by the alkalinity of the blood that the metamorphosis of the malic, citric, tartaric, and other organic acid, used as food, is promoted; and the same influence is exerted even over uric acid, which, when introduced into the system from without, is speedily resolved into urea and oxalic. If, on the other hand, there be not an adequate supply of alkali in the blood, some of the vegetable acids (such as the gallic and tartaric) pass through it unchanged, and reappear in the urine: this is especially the case in carnivorous animals, whose food abounds more in the alkaline phosphates than that of herbivorous or omnivorous animals.*

The *alkaline phosphates*, especially that of soda, exist in considerable relative quantities in the blood. The analyses of Rose render it doubtful whether the phosphates are present really as such in the blood; they are probably products of incineration. Liebig maintains that the alkalinity of the blood depends more upon the existence of the phosphate than the carbonate of soda. The solubility of carbonic acid in the blood is remarkably increased by the presence of the phosphate of Soda. Phosphate of potash does not possess this singular property; when phosphate of potash is brought into contact with the chloride of sodium, phosphate of soda is formed; this remains in the blood while the potash salt is appropriated by the muscles. Thus Liebig explains the constancy with which the amount of phosphate of soda in the serum of the blood is maintained under all variations of food. Potash also exists in the fluids in small proportion. In the blood of the fowl it was discoverable by Liebig in large quantities; in that of mammals it is inappreciably minute. Ammonia does not exist in the fluids; it is the characteristic of the excreted matters. The *alkaline sulphates* play an insignificant part in the composition of the fluids. The iron of the blood will be afterwards studied in connexion with the corpuscles.

Thus a brief sketch has been presented of the history of the protein-compounds, oleaginous principles, and inorganic bodies, which conspire to form the living fluids. At a subsequent stage of this inquiry, each of these divisions will be studied in detail; at this, general statements only are required; they will serve to bound the field of research, and to indicate the path of investigation.

The *floating cells or corpuscles* in chemical and proximate composition, differ remarkably from the fluid by which they are borne; this fluid may be indifferently distinguished as "the *fluid*," the *liquor*

* Researches on the Chemistry of Food, by Baron Liebig, pp. 115, 116.

sanguinis, the *intercellular fluid* (Lehmann). The cells are the floating solids of the fluids; they are determinately organized structures, as truly so as any other living solid. Deriving from the liquor sanguinis their elementary parts, with it they yet contain scarcely a single principle in common. Though thus contrasted in proximate composition with the sustaining fluid, to the normal existence of the latter they are yet essentialy necessary. Between these two elements of the blood there obtains an intimate mutuality of action and reaction. No single real example occurs in the whole animal kingdom of a nutrient fluid totally destitute of morphological elements. This rule is ultimate and absolute.* The origin, and office, and destiny, of these elements are time-honoured enigmas in science, which physiology has attempted in vain to unriddle. A new method of investigation will consist in modestly interpreting the experiments practised by Nature's own hand. Let the mind contemplate first the incomplex fluids of the humblest organism; it discerns living fluids of the simplest chemical composition, and of less entangled relations to the organized fixed solids. These are circumstances which favour the solution of the refractory problem which relates to the mode in which the morphic elements of the fluids arise, grow, and disappear. These are questions which science has never answered. Theories are confusingly numerous; demonstration is utterly wanting. A correct apprehension of the conditions which determine the origin and propagation of the moveable organized solids of the blood, will lie at the root of all future discoveries in histogenesis. The causes inciting to *their* formation must prevail at the birth of every other organized solid, sedentary or free. The act of organization implies the transition of a soluble substance into an insoluble, of a liquid into a solid; the material is first precipated, *then* shaped into form; chemistry and physics preside over the scene. The constituent parts of the nutritive fluids, when traced from the base to the summit of the animal series, occur in the following order of frequency:—(*a*) water and the saline substances dissolved; (*b*) albumen; (*c*) corpuscles; (*d*) oleus principles; (*e*) fi-

* It recently occurred to me, while prosecuting certain inquiries into the mode in which the corpusculation of the animal fluids takes place, to imagine that *vegetable* fluids would exhibit this process under terms of greater simplicity. Reducing hypothesis to demonstration, my first observations impressed me with unbounded surprise. I found at once *that the milk-sap of different plants was charged with floating globules of different size and conformation, that those of different plant-fluids are variously affected by the same reagents.* I claim no novelty for these observations. Schultz (Die Natur der lebenden Pflanze, 1823—28, and Sur la circulation et sur les vaisseaux laticifères dans les Plantes, 1839; and also, Die Cyclose des Lebensaftes, 1841) has diligently laboured in this field: I wish only to raise the subject to the eminence of a new point of view. Schultz saw in the globules-bearing milk-sap of vegetables the counterpart of the blood of animals. Hugo von Mohl ridicules this reputed analogy. The ridicule may yet redound upon the scoffer. The recent researches of MM. Melsens and Panum on the corpusculation of artificially-prepared fluids, render its almost certain that the plant-fluid *globulates* under the government of the mechanical conditions of *pressure* and *motion*. (For an account of these researches, see the admirable report, by Dr. Lyons, which appeared in the April number of this Review.) Since the globules vary in the fluids of different species of plants, a diversity in the chemical composition of these fluids is implied. In a subsequent number of this Review I will state at length the results of my inquiries into the history of the *corpuscles of the vegetable fluids*.

brine. Albumen is the first *organic* principle which is superadded to the inorganic saline solution, constituting the basis of *all* vital fluids. Corpuscles appear next, then the fatty principles, and lastly the fibrinous. If the corpuscles were literally an evolution of the fibrine in the line of a supposed progressive metamorphosis, *their* presence would imply necessarily that of the fibrine; the converse will prove to be true. In a limited number of instances, albumen occurs *without* corpuscles, these latter *never* without albumen. The history of the fluids in the animal kingdom will be prosecuted with more exactness and success, if first that of the floating cells be made the subject of separate and special investigation.—*British and Foreign Medico-Chirurgical Review, October*, 1853.

(*To be continued.*)

Pathology and Treatment of Uterine Catarrh and Internal Metritis. By E. J. Tilt, M. D.

Before drawing attention to several pathological conditions of the mucous membrane lining the body and neck of the womb, which have hitherto been included by pathologists under the denomination of uterine catarrh and internal metritis, I must be permitted to glance at the present state of uterine pathology.

If we consult the numerous writers on diseases of women previous to 1816, when Recamier showed the advantages to be derived from an ocular examination of the womb, and even some of the works written since that time, we shall find great space given to leucorrhœal and uterine discharges, to displacements of the womb, and to cancerous affections and ulcerations; but that the various organic lesions of the os uteri, the erosions, exulcerations, ulcers, and other forms of idiopathic inflammation of the neck of the womb, are either not described at all or very imperfectly. It matters not that a speculum uteri has been discovered at Pompeii, nor that Morgagni, in his 14th and 46th epistles, should have stated that, by means of an ivory tube introduced into the vagina, he was enabled to see an ulcer on the neck of the womb, to Recamier will be given the credit of having originated a vast improvement in uterine pathology. By showing the possibility of an ocular examination of the womb, and urging the frequent necessity of doing so, Recamier enabled his disciples to apply to diseases of the womb the recognised sound principles of general pathology; and if we consult the best pathologists of the day, either in France or in England, we shall now find the various forms of uterine inflammation more or less carefully studied, while leucorrhœa occupies less and less space.

Pathologists are as much divided abroad as at home respecting the terms by which we should designate idiopathic morbid lesions of the os uteri, which frequently cause leucorrhœal discharges; but I scrupulously adhere to truth in asserting that, in the conviction of the great majority of enlightened practitioners in France, Germany, America, or at home, chronic leucorrhœal discharges generally depend upon or-

ganic lesions of the os uteri and its vicinity. My paper does not refer to these lesions, for their pathology and the treatment they require are now well known, having been elaborately treated by many writers. But although lesions of the os uteri are the *most frequent* causes of leucorrhœal discharges and uterine symptoms, these may likewise be caused by various morbid states of the mucous membrane lining the womb. So long as the lesions affect the os uteri, the hand can heal what the eye can see, and the treatment is satisfactory; or if relapses occur, through the patient's negligence or the neglect of constitutional measures on the part of the medical adviser, they can again be cured; but when the lesions exist beyond the field of vision, in the lining membrane of the neck and body of the womb, great uncertainty reigns respecting their diagnosis and treatment: for although during the last few years many French pathologists have written on what they call *uterine catarrh*, when their cases are carefully investigated, it is often evident that they cannot be admitted as samples of simple inflammation of the uterine mucous membrane; for ulceration may exist in the cavity of the neck of the womb, and remain undetected because unsought-for.

Can we wonder after all that there should still be much obscurity in this department of uterine pathology, when, until 1842, most anatomists did not recognise a mucous membrane in the body of the womb, and had but an imperfect knowledge of that which lines its neck. The structure of the mucous membrane of the body of the womb, was first clearly made out by Coste, and we owe to Dr. Tyler Smith the best description of the mucous membrane lining the neck of the womb. In the course of this paper, we shall have to refer to some of the results arrived at by these investigators, I now merely observe that the different anatomical texture of the two membranes permits us to understand why the lesions of *one* are not *necessarily* transmitted to the *other*, although this often occurs.

Inflammation of the mucous lining-membrane of the neck of the womb may be *acute* or *chronic*. In the *acute* form, pus, alone or mixed with mucus or blood, may be seen to ooze out of the os uteri. If it be susceptible of being dilated by the valve of a bivalvular speculum, the mucous membrane may be found very red or ulcerated. Hence two forms of acute inflammation of this membrane, but as they have been well-described, I shall merely observe, that this acute form of inflammation is generally called *uterine catarrh* by French authorities. It was, for instance, in seven cases of this description that Becquerel tried the effects of uterine injections. As I shall hereafter mention, most English pathologists consider the discharge to come as well from the body of the womb as from its neck. Believing this to be an error, we suggest that the term *catarrh* should be reserved for cases of inflammation of the lining membrane of the neck of the womb in which it is but little swollen, attended by a small amount of heat, and by a discharge oftener mucous or sanious than purulent; or, in other words, catarrh is a subacute inflammation, and as this affection never

attacks the body of the womb, it would be better to adopt the expression of *cervical catarrh*.

The subacute, or chronic inflammation, of the lining membrane of the neck of the womb, is well worth attention, on account of its frequency, an assertion corroborated by many authorities, as well as by Melier, who was one of the first to notice it in the "Mémoires de l' Académie de Médecin." Burns and Jewell have recognised it as a *subacute affection of the cervix uteri*. Lisfranc and F. Churchill have called it *acute uterine leucorrhœa*, and Dr. Bennet, cervical catarrh. Its long duration and tendency to relapses, and to cause erosion, or ulceration of the os uteri, renders it still more deserving of your attention. The following cases will exemplify the complaint :—

Case 1.—A year ago a lady was placed under my care by Dr. Stone. She is tall, stout, aged twenty-six, and of a florid complexion, but the pulse is habitually weak. She first menstruated at thirteen, and the function was regularly performed, and with little pain. Married at twenty-one, but never conceived. At twenty-two her feet got very wet at a menstrual period : the flow was not checked, but from that time she became much subject to back pains, and to a constant pain in the left ovarian region. She had a slight brown discharge during the whole intermenstrual period ; was nervous ; had hysterical symptoms, such as involuntary tears and choking, but no fits. Intercourse was seldom painful, and did not increase the discharge or the usual pains. Menstruation retained its regular type, but was accompanied by a much more abundant flow, more pain, and by hysterical fits. This state of things had lasted two years when I was consulted. There was then considerable pain on making a digital examination, and I found the neck of the womb spotted with numerous exulcerations. These were cured by several applications of nitrate of silver and vaginal injections, with a solution of acetate of lead, but the back and ovarian pains remained unabated, so did the hysterical symptoms. There was no lesion to account for these symptoms, but as on pressing laterally all down the neck of the womb I gave considerable pain ; and as the brown discharge continued, though the body of the womb was neither painful nor enlarged, I concluded that the lining membrane of the neck of the womb was subacutely inflamed, and, with the view of substituting a healthy inflammation instead of one of a low type, I painted the inside of the neck of the womb with the solid nitrate of silver. This was followed by much abdominal pain and protracted hysterical fits. A second application, made ten days afterwards, being followed by similar accidents, I resorted to the application of tincture of iodine inside and outside of the neck of the womb. This was done every four or five days for the first three months, and then only once a week, while at the same time the patient took thirty drops of Bullock's syrup of citrate of quinine and iron three times a day. Menstruation continued extremely profuse for the first three months of treatment, being often accompanied by hysterical fits ; but the morbid symptoms gradually abated, and the pa-

tient has been for the last six months free from all suffering, uterine discharge, and hysterical symptoms.

Case 2.—Mrs. C——, aged twenty-six, of middling stature, delicate complexion, light hair, and with all the characteristics of a lymphatic constitution, consulted me four years ago. She first menstruated at fourteen, and the flow was regular and attended by little pain until about her eighteenth year, when the flow was suddenly checked by remaining several hours in damp clothes. Intense pain was felt in the right ovarian region, and pus is said to have been passed several times by the vagina. When I was called in, the lady suffered from intense back pain, profuse discharge of viscous fluid from the uterus, mild hysterical symptoms, and the os uteri was slightly ulcerated. A few applications of nitrate of silver healed the ulceration, and the patient took sulphate of iron pills and the bitter infusion of gentian. Notwithstanding the healing of the erosions, the symptoms remained about the same, and I found, as in the preceding case, that no pain was felt when the body of the womb was pressed, but a considerable amount when lateral pressure was made to the neck of the womb. The uterine symptoms were alleviated by the application of the solid nitrate of silver to the internal surface of the neck of the womb, and instead of white the discharge became brown. This was checked by seven or eight applications of the tincture of iodine, and the patient experienced no further suffering. A few months back, however, I was again sent for, as there was a fresh attack of uterine pain and brown discharge, which was cured by topical applications of tincture of iodine, by the internal exhibition of steel, and by a sea voyage. In this case also the patient has never conceived. Menstruation remained regular, and there was no flooding.

These cases are given to illustrate, not to substantiate, my practice; so without detailing others I shall proceed to the remarks they suggest.

Causes.—The principal causes are—imprudences committed during the menstrual epochs; the excitements of a prurient imagination, which too often lead to masturbation; the too frequent practice of matrimonial rites; miscarriages and confinements.

Symptoms.—The presence of the usual uterine symptoms, in absence of all visible lesions. A digital examination is sometimes painful to the os uteri; at other times not. The same holds good with the application of the speculum, or with matrimonial intercourse; but pressure applied *laterally to the neck of the womb* gives more or less pain, which is not the case in the healthy state. A glutinous discharge is seen oozing out of a somewhat turgid os uteri, and long threads of it may be removed; but when uncompleted by erosions, ulcerations, or vaginitis, we have not observed that the discharge was frequently abundant. Whether the mucous follicles lining the neck of the womb can be affected by some other lesion, so as to warrant Dr. Tyler Smith's position, that the mucous membrane of the neck of the womb is the most frequent origin of leucorrhœa, remains to be

decided by further researches; this opinion having been also held by Boivin and Duges, it demands very careful consideration.

Sometimes the discharge is of a brown colour, as in the cases related; not mucus streaked with blood—not the sero-sanguinolent discharges of the body of the womb, but an intimate mixture of mucus and blood, as in the rusty sputa of pneumonia. This discharge we consider to be very characteristic of subacute inflammation of the mucous lining of the neck of the womb; and on a microscopical examination, it is found to contain globules of blood more or less difformed, and mixed with mucus and epithelial scales. It is very annoying to women, from the manner in which it stains the linen. This discharge may last the whole intermenstrual period, or only during the ten days which follow the flow; and we have found iodine applications of great utility in such cases. Judging from my own practice, I believe that the *viscous* discharge is more frequently met with than the *brown*, which generally accompanies a very mild type of inflammation.

Chomel, in his Clinical Lectures, has drawn attention to cases in which there is a red stain on one of the lips of the os uteri; instead of being sunken, it is slightly raised, of a vivid redness, velvety to the touch, not surrounded by pus, but by the well-known viscous fluid of the neck of the womb. This is no more an ulceration than the port wine stains or erectile spots on the skin, and may be considered an exaggerated development of the bloodvessels of the villi, which in the normal state are covered with cylindrical epithelium, and, when hypertrophied, form a piece of living crimson velvet, which in four instances I have seen lining part of the cavity of the neck, giving rise to the symptoms I have just described. Such lesions predispose to metrorrhagia, and their detection suggests the necessity of active local treatment, as in an exaggerated instance of this lesion which was related by Dr. Forget to the Society of Emulation at Paris. A woman had experienced repeated metrorrhagia; and on being examined, the neck of the womb was found lined with a soft, red, and bleeding substance, elastic, crepitating, and offering most of the characters of erectile tissue. This surface was repeatedly cauterized, and after a few months of treatment, was completely cured. We think that Dr. Kennedy, of Dublin, has described similar appearances under the name of *doughy* or *boggy* ulcers of the womb. In my four cases, the women had been several years married, and had been sterile. This is in harmony with Chomel's experience.

Prognosis.—Dr. Kennedy has stated that "although the inflammation of the internal surface of the neck of the womb may be borne without great inconvenience for years, still it leads to the serious implication of the sub-mucous tissues, which undergo a change which may be termed *uterine ramollissement*, attended by frequent hæmorrhages, unhealthy, grumous, and muco-purulent discharges." Now, with due deference to high authority, we think that Dr. Kennedy has

described exceptional cases. All mucous membranes may remain chronically inflamed for years, without entailing more serious lesions than were first visible, and in general the mucous membrane lining the neck of the womb may remain subacutely inflamed, without causing anything like *uterine ramollissement*, but it fosters hysterical phenomena, keeps up a vaginal discharge, and causes repeated relapses of erosions, or ulcerations of the neck of the womb. I believe Dr. Tyler Smith's views are correct, and that the inflammatory action of the glandular mass of the neck of the womb, determines the too abundant secretion of its alkaline products, and that, by their presence on the os uteri, accustomed to acid secretions, they cause the rapid shedding of the epithelium, with that destruction of the subjacent villi which warrants the name of erosiion or exulceration. Whatever form it assumes, all observes agree that eubacute inflammation of the mucous lining of the neck of the womb is a frequent cause of sterility.

Treatment.—Dr. Melier advised the injection of emolient fluids into the cavity of the neck of the womb, but they would be ineffectual to modify the inflammation of the mucous membrane, while their entrance into the cavity of the body of the healthy uterus might be attended by dangerous results. If emollient injections into the cavity of the neck of the womb are objectionable, how much more so must be injections of a solution of nitrate of silver, as used by some French practitioners for what they call *uterine cartarrh*. Although the cavities of the healthy body and neck of the womb are separated by a stricture, sufficiently tight to prevent the easy passage of the uterine sound, nothing proves that this stricture could prevent the passage of fluid, and the numerous and fearful accidents which have attended the practice of uterine injections, permit the belief that the stimulating fluids sometimes cause fatal metro-peritonitis, by passing into the healthy fundus uteri, and, perhaps, into the peritoneum through the oviducts. Dr. Bennet states, in his work on Uterine Diseases, page 269, "that nothing but strong cauterization with acid nitrate of mercury, or the potassa fusa cum calce to the lining membrane of the neck of the womb can overcome the tenacity of the disease." If this refers to exceptional cases, I commend the practice, but in cases similar to those related, I prefer the tincture of iodine, or the iodide of iron, because it enables us to effect a solid cure, without inducing much pain, or running the chance of the serious accidents which sometimes follow caustic applications. After clearing away the uterine mucus I apply the tincture of iodine with a *sable* paint-brush, introducing it as far into the neck of the womb as can be done without using much force. On withdrawing the brush, I paint the vaginal portion of the neck of the womb. This is a mode of practice that I have now used for several years, and I can safely recommend it, as I find that something similar has been recommended by Dr F. Churchill. A drachm of acetate of lead, in a pint of decoction of poppy-heads, forms the best injection in such cases.

With regard to the crimson elevations on the mucous lining of the neck of the womb, tincture of iodine is of little use. The solid ni-

trate of silver is the best application, or the acid nitrate of mercury; and it must be borne in mind that this condition is often more difficult to treat than simple ulceration.

With respect to constitutional measures, I shall merely say, that in all chronic uterine affections the practitioner will find a sheet-anchor in the various preparations of iron, and that the syrup of citrate of quinine and iron, or the syrup of iodide of iron, are very good preparations.

The pathology of internal metritis is yet to be written. Hints may be gathered from works on uterine inflammation, on uterine catarrh, on dysmenorrhœa, and on menorrhagia; but all this information must be tested by a considerable number of cases, collected with a severity of diagnosis, unattainable until the recent improvements in uterine pathology. My object is to place before the profession the present state of our information on this point; and if in so doing I only quote from foreign authorities, it is because internal metritis has been overlooked by English writers. Dr. Bennet is, we believe, the only English writer who has treated of this disease; but in noticing it he has ignored the principal documents relating to its history—those derived from the practice of Recamier and his pupils.

Before commenting on the morbid conditions of the mucous membrane lining the body of the womb, I must recall to memory that the researches of Coste, confirmed by many microscopical observers, show that the unimpregnated uterus is lined by a very thick mucous membrane. The skeleton of this membrane is formed by fibro-plastic tissue, and it is completely studded with follicles, which have a vertical direction, and are so closely pressed one against the other, that they appear to constitute the whole of the membrane when observed in the womb of a woman dying during menstruation. These glands are follicles like those which line the mucous membrane of the neck of the womb; but their secretion is less viscid, if not watery. In the body of a healthy womb is found a small quantity of a grey or pink fluid, which is semi-transparent, and contains cylindrical epithelial cells, blood-globules more or less deformed, and fragments of fibrine. The abundance of this glandular apparatus, and the more watery nature of their secretion, allow us to understand the abundant discharge of serous or sero-sanguinolent fluid, which comes from the body of the womb in some of the morbid conditions of its mucous membrane.

With regard to the bloodvessels of this mucous membrane, the abundance of their reticulations, which is sometimes shown by a natural injection and the delicacy of the epithelial membrane which covers them, gives a satisfactory explantion of the frequency of uterine hæmorrhage as a complication of internal metritis. Having thus premised, I may affirm that as we rise from the os uteri to its fundus, disease becomes less and less frequent, and more and more difficult to detect and to cure.

Although the mucous membrane of the body of the womb has been found *acutely* inflamed, intensely red, and covered with pus and false

membranes, yet this condition being generally associated with similar changes in the body or neck of the womb, forms a part of acute metritis, of which I do not now intend to treat.

In some cases of dysmenorrhœa and very profuse menstruation, the intense sufferings and the floodings are evidently caused by inflammation of the lining membranes of the womb. In proof of this, I exhibited to the fellows of the London Medical Society the uterus of a young woman who was under the care of Dr. Watson at the Middlesex Hospital, and who died from profuse menstruation. Dr. Watson cannot remember all the details of the case, but he recollects that it was not marked by the symptoms of acute metritis. The morbid specimen is preserved in King's College museum. The mucous membranes of the womb were alone diseased; they seem to have been both acutely inflamed, since both are covered with a thick false membrane. This membrane is not an exfoliation of the mucous membrane; for in one form of dys-menorrhœa the mucous membrane of the body *alone* exfoliates, whereas this false membrane covered both the cavities of the body and the neck, and even covers part of the os uteri; neither can this membrane be considered to be merely the fibrine of a blood-clot; for on closer examination it will be found to be of a loose texture, and more pointed with red where it lines the body of the womb, pale and denser where it lines the neck. If it were a blood-clot would not its texture be uniform?

If menorrhagia be frequent the opportunities of ascertaining its cause is extremely rare, and this morbid specimen proves that in some of the cases merely described as menorrhagia the flooding is really caused by acute organic lesions hitherto unsuspected.

What is known of internal metritis leads us to consider it as a subacute or chronic inflammation of the mucous membrane lining the body of the womb.

There is a form of dysmenorrhœa characterized by a more than usual amount of suffering, and by the ejection of membranes from the womb. As the exacerbations occur only at the menstrual periods, it is probable they occur under the influence of some unknown ovarian impulse as Dr. Oldham has contended; but, in many cases of this description, the persistence of uterine symptoms during the intermenstrual periods, shows that the mucous membrane of the body of the womb is permanently diseased.

The researches of Coste and others seems to prove that during pregnancy the mucous membrane increases in thickness, in vascularity, and, if Pouchet's observations are to be relied on, a delicate cast of the mucus membrane is thrown off from the body of the womb at the end of each menstrual epoch, and its fragments pass away in the mucous discharge. Under the combined influence of some *ovarian* influence, and a low type of inflammation, the mucous membrane of the body of the womb *exfoliates*, as it does in pregnancy, and there is cast from the womb a perfectly organized membrane, in which the

characteristic glands may be seen, thus differing from the patches of grey, well-organized fibrine, which are sometimes thrown off with great pain during menstruation. The pathology of these cases of dysmenorrhœa is doubtless very obscure, because in such cases post-mortem examinations are extremely rare: but if in some of our hospital museums, you compare the womb of women who were affected with the form of dysmenorrhœa, with the womb of women who died during menstruation, you will in general find that when the mucous membrane of the womb was in the habit of exfoliating its internal cavity was much larger than usual, and the mucous membrane much more injected.

The mucous membrane of the body of the womb is sometimes affected with a variety of subacute inflammation which might be termed *hœmorrhagic*, inasmuch as the sanguineous discharge by which it is attended constitutes its chief symptom and danger. The following case will illustrate this variety:—

Eliza B——, admitted to the Farringdon Dispensary, Nov. 21st, 1851; was twenty-three years of age; of middling stature and size; looks delicate, and has been so from childhood. The menstrual function began at fifteen, after three years of continued headache, giddiness, and drowsiness. The flow on its first appearance was very abundant, and returned at once again at the regular time. Although the daughter of a Major, she brought endless trouble on herself by marrying a workman, by whom she had a child at sixteen and three months, and three more children since then. She always weaned her children at nine months, because she felt weak; but she never menstruated until about twelve months after parturition, and then, in consequence of some fright or domestic altercation, after the appearance of which flow she has always fallen pregnant. She is always delirious after confinements, but makes good recoveries. When first admitted a patient, she was suckling a child four months old, and was suffering from mild hysterical symptoms, which were soon subdued.

On the 28th of April, 1852, she returned with an attack of menorrhagia, which yielded to cold aluminated applications and to the internal exhibition of acetate of lead.

In May there was slight leucorrhœa, burning pain in the back and in the left ovarian region; the patient felt a swelling there — I could not; but on making a digital examination, the body and neck of the womb was uniformly tender, but no lesion could be seen in the neck of the womb. I ordered alum injections and mercurial inunctions to the ovarian region; sedatives, opiate enemata; and the bowels were kept open by small quantities of sulphur and borax.

June 16th.—The same symptoms persisted; the neck of the womb was more congested. I painted it internally with nitrate of silver, in hopes of modifying some morbid condition which might remain unseen high up in the cavity of the neck. This was repeated every week several times without ill effects.

July 14th.—Flooding returned, and resisted cold applications and the injection of a solution of acetate of lead, as well as its internal exhibition. It was at last checked by ten grains of ergot of rye three times a day; when no blood came away, a serous fluid did; but this did not come from the vagina—that was *seen* to be healthy; it did not come from the neck of the womb, for the absence of pain on lateral pressure showed it was not diseased, and when chronically inflamed the secretions of that part are viscous. The uterine sound entered freely, and seemed to move on a smooth surface of an enlarged uterus. I left off the application of caustic, as it was no longer indicated; and as the liver was out of order, I gave blue pill, and ordered inunctions with mercurial ointment to the lower part of the stomach.

In September salivation came on; the sero-sanguinolent flow suddenly stopped, and she became delirious. The next day the discharge came from the womb, at first sero-purulent, then bloody, and then again sero-purulent with flakes of coagulated mucus described as "skins." Saline draughts, opiate injections and applications, iodide of lead ointment to the abdomen, were then had recourse to, to allay the abdominal pain. During the time the strength of the patient diminished; but little emaciation had taken place, although, even when the patient was not feverish, scarcely any food was taken or sleep enjoyed. Hysterical attacks became more and more violent, and for a few months it was necessary to remove the urine every day. Active uterine treatment was out of the question, for if, while the patient was lying quietly in bed, a digital examination was made, she would go off in an hysterical attack so soon as the finger touched the womb. Tonics and steel were given, and acetate of morphine.

About February, 1853, Dr. Bennet saw the patient with me, and we agreed on the urgency of pushing the exhibition of morphine to saturation point. For several weeks the patient took from two to three grains of acetate of morphine daily, at first without any appreciable result, then the pains in the hypogastric region gradually abated, and some time after sleep was induced. The dose of morphine was then diminished.

After the uterine discharge had lasted for more than twelve months, sometimes as a flooding, at others to a trifling amount, it ceased towards the end of August, and about the same time the patient brought up a considerable quantity of blood from the lungs; and notwithstanding repeated hæmorrhage to a less amount, she had all the appearance of health, and was able to keep a day-school.

In October menstruation returned, being attended by great pain and clotty discharge. Thus a highly nervous temperament, early marriage, repeated pregnancies, were the predisposing causes of a complaint for which it is impossible to trace a determining cause. She was often despaired of, and the cure is perhaps to be attributed as much to nature as to art. Although cured, the patient's constitution

remains unaltered, and she is liable to relapses from over-work and over-excitement.

I have seen several cases more or less resembling this, in which long continued hæmorrhage was the principal symptom of a low type of internal metritis. One is related at page 387 of Dr. Hennen's translation of Boivin and Dagis. Light is thrown on such cases by one observed by Dr. Mackenzie, in which the uterus being inverted, the effects of stimuli on its internal surface could be demonstrated. The irritation of this surface was always followed by a sanguineous discharge.—*Lancet, December* 17, 1853.

"*Electro-Biology and Mesmerism.*"

We have ever opposed, to the utmost of our power, all those notions which ascribe to a new force, such as animal magnetism or tellurism, any effects on the animal body. Of the existence of such force we have no proof whatever. We also regard as unscientific and faulty the term electro-biology. By biology is understood the doctrine of life; and the great work of Treviranus on that subject should have been alone sufficient to prevent the application of a truly scientific term to a certain class of phenomena, not to speak of the improper exhibitions of perverted nervous functions which have been made in public. Such expressions as "biological," "biologized," "to biologize," etc., are altogether unmeaning and unwarrantable. Neither do we altogether approve of hypnotism introduced by Mr. Braid, for the obvious reason that sleep, in the ordinary acceptation of that word, is by no means essential for the production of the peculiar phenomena described. Still it is the best term yet proposed. As to clairvoyance, we need scarcely say, that no fact has ever come under our cognisance, which supports its occurrence, and that we utterly disbelieve in its existence, and the puerile fictions to which it has given rise. We are most anxious to impress upon our readers, our condemnation of all these expressions and theories, and this because there are certain *facts* mixed up with them, which we consider have not only been well established, but which are of a character that merit the most serious consideration of every medical man. These facts, indeed, have been constantly brought under the notice of mankind from the remotest ages, and it has simply been the difficulty of explaining them, according to the common sensations of men, and the prevailing opinion of the learned, that has given rise to all the imposture and charlatanism with which they have been connected. The article published in the last number of the "Quarterly Review," entitled "Electro-Biology and Mesmerism," was written by Dr. Carpenter, and will, we trust, go far to separate what is true from what is false connected with this matter. We can unhesitatingly assure our medical brethren, that amongst what is true there is that which demands their especial attention.

The most important fact, and one which every physiologist who has investigated the subject has fully convinced himself of, is that about one person in twenty, after gazing intently for several minutes on any fixed object, is thrown into a peculiar mental condition, closely resembling somnambulism. In this condition, by suggesting to him certain ideas, all the nervous functions may be increased, perverted or diminished. There seems to be no limit to the variety and degree in which this may be effected. The person, for the time being, is governed by a dominant idea, and thinks, acts, and feels according to its dictates, in exactly the same manner as a monomaniac does. Former pains are unfelt, or new ones produced; incapacity for exertion is overcome, and the muscular strength increased, or it is rendered irregular and powerless; all the sensations may, in like manner, be influenced, and the mental processes so changed, that even self-identity may be lost, and a woman be made to think herself a man, and talk and act as she has seen him do. To enter, as Dr. Carpenter and others have done, into a long description of these particular acts and perverted sensations is unnecessary, and we have no space for it. We are told, however, that he has investigated them, and is satisfied of their reality. In 1851 they were fully investigated by Professor Bennett, and the results published by him in a pamphlet.* Sir Henry Holland, of London, in his Medical Notes and Reflections, alludes to them, and admits them as well-known occurrences. Their accuracy has been tested by numerous parties of scientific men in Edinburgh; and on one occasion the most sensitive subjects were found, among the more advanced medical students at a meeting of the Royal Medical Society, when the subject was discussed there; and at another time they were admitted to be true, and to be within the cognisance of the members of the Medico-Chirurgical Society, at a very crowded meeting. We hold, then, that all the facts which have ever been proved to exist, or are capable of demonstration by the mesmerists, have been fully admitted and recognised by the medical profession, and been conclusively shown not to result from the influence of an external force, or of the will of another, but upon the mind or imagination of the individual affected through the influence of suggestive ideas. The recognition of the facts, and the generalization of the law which governed them, constitute a very important step in nervous physiology, for which the scientific world are undoubtedly indebted to Mr. Braid of Manchester. On the point Dr. Carpenter says:—

"The first important step was made by Mr. Braid, a surgeon in Manchester, who discovered, about twelve years since, that a state of coma passing into somnambulism (to which he gave the appropriate designation of *Hypnotism*), can be induced in numerous individuals of all ranks, ages, and temperaments; and that the phenomena of this state are so essentially the same with those of the (so-called) Mesmeric somnambulism, as to afford the most valuable assistance in the analysis of the real nature of the latter. In both, the somnambulist appears to be incapable of controlling his ideas, his feelings, or his actions; and is entirely amenable to the will of another, who may govern the course of

* The Mesmeric Mania of 1851: Edinburgh, Sutherland and Knox.

his thoughts at his own pleasure, and oblige him to execute any command. The clue to the marvel was soon found by Mr. Braid, in the concentrated operation of that principal of *suggestion* which has long been known to psychologists; and under the guidance of this idea, he has subsequently followed up the investigation with great intelligence, making no mystery of his proceedings, but courting investigation in every possible way."—P. 503.

Now, in point of fact, not only was the first important step taken by Mr. Braid, but the whole subject has been thoroughly worked out by him, for to the great generalization that these phenomena are due to suggestive ideas communicated to the mind, little has been added by Professor Bennet, Sir Henry Holland, or Dr. Carpenter. All these authors, however, have given new facts and illustrations, and have pointed out how much of our every day thoughts, functions, and acts, are attributable to suggestions derived from without. Thus, to quote from Dr. Carpenter's article ;—

"No one can be ignorant of the fact, that we frequently experience sensations, which, originating in our own sensorium, instead of being called forth by impressions made by external objects upon their appropriate organs of sense, are designated as *subjective*. The ringing in the ears, the flashes of light before the eyes, the nauseous tastes or disagreeable odours constantly perverting the true savour of everything that is tasted or smelled, the feeling of cutaneous irritation excited by the simple mention of the unclean torments of our beds, are familiar examples. We may cite, as parallel phenomena, those renewals of past sensations, which are often excited, with all the vividness they could derive from the actual presence of the object, by the mere force of mental association. Thus, it is by no means uncommon for those who suffer acutely from sea-sickness, to experience nausea at the mere sight of an agitated ocean, especially if a wave-tossed vessel be within view; and a like feeling, we are assured, has been produced by the sight of a toy, in which the motion of a ship was imitated with peculiar fidelity. We have even known a case in which a lady, who witnessed the departure of a friend by sea on a stormy day, was affected with an actual paroxysm of sea-sickness. Such facts are so familiar as to have become proverbial; for the common phrase, 'it makes me sick to think of it,' is nothing else than the expression of a physical feeling excited by mental association. There are few persons indeed who have not experienced the vivid return of past sensations, pleasurable or painful, when the appropriate mental state had been renewed. A Roman Catholic, who had gone to confession for the first time, when a boy, with his mouthful of the taste of a particular kind of sweet cake in which he had been indulging rather immoderately, never went on the same errand for a dozen years or more, without the distinct recurrence of the same flavour."

"Most persons have heard of the exclamation of Dr. Pearson—'Bless me, how heavy it is!' when he first poised upon his finger the globule of potassium produced by the battery of Sir H. Davy; his preconception of the association between metallic lustre and high specific gravity, leading him to attribute to this new body a character which the test of the balance determined to be the opposite of the fact. So Professor Bennett mentions a case of supposed child-murder in Scotland, in which, when the coffin was exhumed, the procurator-fiscal, who attended with the medical men, to examine the body, declared that he already perceived the odour of decomposition which made him feel faint, and withdrew in consequence; yet, on opening the coffin, it was found to be empty; and it afterwards turned out that no child had been born, and con-

sequently no murder committed. Another case, related by Prof. Bennett, upon an authority which we know to be trustworthy, is yet more remarkable, as showing, beyond a doubt, the reality and intensity of pains, which had their origin in a mental delusion, and not in a physcal lesion. A butcher, who had a shop in the market-place at Edinburgh, in trying to hang up a heavy piece of meat upon a hook above his head, lost his footing in such a manner that his arm was caught upon the hook. On being taken down and carried into the house of a neighbouring surgeon, he expressed himself as labouring under the most acute agony ; and the paleness of his countenance, and the almost entire absence of pulse at the wrist, were unmistakeable evidences of the reality of his torture. His arm could not be moved without causing excessive pain, and he frequently cried out while the sleeve of his coat was being cut off ; yet when the arm was exposed, it was found quite uninjured, the hook having only penetrated the cloth of the sleeve, and the skin being scarcely even grazed ! "—P. 516—18.

Again :—

" An extraordinary degree of power may be thrown into any set of muscles, by telling the somnambulist that the action which he is called upon to perform is one which he can accomplish with the greatest facility. One of Mr. Braid's hypnotized subjects—a man so remarkable for the poverty of his physical development, that he had not for many years ventured to lift a weight of twenty pounds—took up a quarter of a hundred weight upon his little finger, and swung it round his head with the utmost ease, upon being assured that it was as light as a feather. On another occasion he lifted a half hundred weight as high as the knee on the last joint of his forefinger. The impossibility of any trickery would be evident to an observant eye, since, if he had been trained to such feats (which few of the strongest men could accomplish without practice), the effect would have been visible in his muscular development. Consequently, when the same individual afterwards declared himself unable to lift a handkerchief from the table, which he had been assured that he could not move, we saw no reason for questioning the truth of his conviction ; based as this was upon the same kind of suggestion as that by which he had been just before prompted to a far more astonishing action."—P. 530.

Now, without citing any more passages, we would ask whether there is anything unreasonable or improbable in supposing that such an influence over the nervous functions, if judiciously exercised, may cure some diseases that have hitherto baffled the therapeutics of medical men ? What practitioner of experience has not encountered hysterical females, who could not or would not walk, in whom various kinds of paralysis, convulsions, neuralgic pains, amenorahœa, constipation, and a host of disorders have existed, which have bid defiance to every kind of drug and every kind of treatment ; and yet who, on the occurrence of some mental excitement, some change in their domestic circumstances, or state of life, have suddenly become well ? Is it too much to believe that functional disorders may be lessened or removed by suggestive ideas communicated to the minds of such persons, or that various secretions which are well known to be powerfully influenced naturally by the mind, may not, in like manner, be so governed by rules of art ? To us this not only appears probable, but actually certain. In fact, not only are we indebted to Mr. Braid for a discovery of the law which regulates these nervous aberrations,

but for its practical application to the relief and cure of diseases. Here we quote again from Dr. Carpenter's article :—

"It is found that the pulsations of the heart and the respiratory movements may be accelerated or retarded; and various secretions altered both in quantity and quality. A lady, who was leaving off nursing from defect of milk, was hypnotized by Mr. Braid, and whilst she was in this state, he made passes over the right breast to call her attention to it. In a few moments her gestures showed that she dreamt that the baby was sucking, and in two minutes the breast was distended with milk, at which she expressed, when awakened, the greatest surprise. The flow of milk from that side continued abundant, and, to restore symmetry to her figure, Mr. Braid subsequently produced the same change on the other side; after which she had a copious supply for nine months. We are satisfied that, if applied with discrimination, the process will take rank as one of the most potent methods of treatment, and Mr. Braid's recent Essay on Hypnotic Therapeutics seems to us to deserve the attentive consideration of the medical profession."—P. 532.

The Essay on Hypnotic Therapeutics here so highly spoken of by Dr. Carpenter was published in the last July number of this journal. We are aware that it excited considerable surprise, and difference of opinion, among some of our readers. But let us beg those who have not minutely considered this subject to reflect, 1st, on the undoubted fact that certain persons are and can be made slaves of dominant ideas; and, 2d, on the equally undoubted fact that such mental ideas are known, by universal experience, to exercise a stimulant or depressing effect on all the bodily functions. If these propositions be admitted, what is there physiologically more extraordinary in bringing on a secretion of milk by suggesting the idea of suckling, than of causing a man's mouth to water by "bare imagination of a feast?" Is it not known that hypochondriacs, bed-ridden for years, have run with alacrity to escape from a supposed fire? and why may not an hysterical paralytic, in like manner, also walk, when the mind is stimulated by confidently telling her that she can and must do so? Is not pain always alleviated by directing the attention from the part complained of; why may not rheumatic and gouty persons be benefitted by fixing their thoughts upon something else than their own ailments? The habit of going to the water-closet at a particular hour, is well known to be the best means of securing a daily alvine evacuation, why may not the command to go there, when the patient is in a certain mental state, produce relief from a temporary constipation? In short, we maintain, that so far are the statements made in Mr. Braid's paper from being incredible, that to the physiologist, and especially to one who has investigated the extraordinary power of dominant ideas, they bear inherent proofs of their correctness.

Far be it from us to check or oppose that rational scepticism in medicine which is one of its best safeguards from a too rapid revolution, or to shorten one moment that period which is necessary to give authenticity and exactitude to alleged improvements or new facts. But this end once attained, and the alleged facts proved to be real by sober-minded men, whose interests are in no way concerned with their adoption, we are no longer warranted in ridiculing or despising them. The facts, principles, and mode of treatment brought forward by Mr. Braid have now been long tested, and are beginning to attract the

attention of the profession:—and when we perceive a man of science like Dr. Carpenter telling us that he has personally investigated them; expressing his convictions of their truth, and endeavouring by their means to disabuse the educated public, in the pages of the "Quarterly Review," of the popular superstitions which have hitherto been mixed up with them,—it is surely incumbent on medical practitioners to be as conversant with the subject as the well informed patients they may have to converse with. Above all, it is their professional duty to relieve pain and cure diseases, and if it can be shown that this or that method of treatment can effect the one and accomplish the other, they are bound to give it a trial. For ourselves, we feel satisfied that a more careful examination of the influence of the mind upon the body, and more especially a close observation of the effects of dominant ideas, will clear away much of the confusion and uncertainty connected with our art, and free therapeutics from a large portion of that empiricism with which hitherto it has been connected.

After what we have said of Mr. Braid, he cannot consider us insensible to his just claims in this matter. He will, therefore, we trust, excuse us for saying that much of the opposition he has experienced has arisen from the egotistical style of his writings, and the continual repetition of I did this, or I did that, and of MY process, or MY treatment. Many have looked with suspicion on the small size of his publications, in 12mo or 18mo, and have thought that they were reprints from the columns of provincial newspapers. We would hint to Mr. Braid, that it is at all times difficult to awaken the attention of a practical profession like ours to new modes of thought, and especially to new kinds of treatment, and that should he be subjected to misrepresentation or calumny, the best way of meeting it is by a calm representation of authentic facts, and by his neglecting no opportunity of convincing, by positive evidence, respectable men of independent thought. We can now congratulate him on at least having secured some attention to his views, and if he would abandon the newspaper press, arrange his facts, and publish a plain, unexaggerated, and condensed account of his researches in a readable 8vo volume;—in short, if he will hypnotize himself and act on the suggestive idea we thus give him, it may happen that he will be remembered by posterity as one who has usefully contributed to the science and practice of medicine.—*Monthly Journal of Medical Science, December* 1853.

PERISCOPE.

MEDICINE.

Cholera.—A case under the care of Dr. Todd in King's College Hospital was treated with a single opiate enema and with emetics of table salt at frequent intervals for about twenty hours. The patient is recovering.

Mr. Moss's method of treating cholera is by giving large draughts of pure cold water and at the same time, in solution, from a scruple to half a drachm of the bi-carbonate of potass as often as either vomiting or purging occurs. He believes all stimulants and especially opium to be injurious.

Cholera Fly.—Mr. Knox of Edinburgh says that he has observed a fly of a somewhat peculiar form and colour, and having yellow stripes on the abdominal region, during the prevalence of Asiatic cholera in Great Britain. M. Schoubein says that the deficiency of oxygen in the atmosphere coincides with the re-appearance of cholera.

[There is a continual deficiency of oxygen in the atmosphere of the Black Town of Madras.]

Sulphuric acid.—This remedy is recommended by Dr. Fuller as a cure for diarrhœa. The *Austrian specific for cholera* is composed of

Sulphuric acid (density 1845)..	... .	grs. 19·07
Nitric acid (density 1500)...	... ...	,, 11·81
Gum and sugar... ..	... ...	,, 23·62
Water... ..	... ...	,, 407·00
		461·50

Sarcinæ.—Four cases of chronic disease of the stomach with sarcinæ in the vomited matters are reported in the *Medical Gazette* of the 12th and 19th November 1853. The symptoms were obstinate vomiting; pain at the epigastrium, and obstructed bowels. The vomited matters varied from a light colour to chocolate-brown; had an acid re-action and contained torulæ and sarcinæ. In one case the vomited matter contained a yeasty scum. Three of the patients died and one is still under treatment. On examination after death, the stomach of one of the patients measured thirty-four inches along its great curvature and was adherent to everything near it. Around the pylorus was a dense mass of fibrous tissue, subperitoneal, which by contraction had narrowed the orifice to the size of a quill. In another the stomach was very large but collapsed; close to the pylorus was a small round opening through which the contents of the stomach were escaping. The pyloric orifice was narrowed to the size of a quill by dense tissue around it. The stomach of the other patient was perforated in two places and an ulcer about two inches in diameter having for its base the substance of the pancreas, was observed on its posterior surface. The pyloric orifice was large enough to admit the little finger, but it was pressed upwards and almost valved by a mass of the size of a walnut placed in the angle formed by the junction of the stomach and duodenum. In the treatment, sulphite of soda as recommended by Dr. Jenner was found useful only as a palliative. Dr. W. H. Ransom agrees with Goodsir in considering the sarcinæ to be vegetable organisms.

[Any medicine will prove only palliative while structural disease of the stomach which may be considered as the cause of the sarcinæ is

not removed. As sarcinæ is so much like yeast, the smallest quantity of it that may remain in the system undestroyed by the sulphites is likely to produce more.]

Death caused by chloroform.—Three deaths were caused by the use of chloroform in October last, one in the Edinburgh Infirmary, another in University College Hospital, and another in St. Bartholomew's Air, diluted with 10 per cent. of chloroform vapour, is said to be sufficiently powerful to kill by paralyzing the heart. It is said that by Dr. Snow's inhaler we can exactly regulate the per-centage of vapour in the air.

Opium in the prolapsus of the rectum of children.—Half a grain of opium given every 2d or 3d hour after the gut is replaced and a compress applied, is recommended by Giuseppe Montini as a cure for prolapsus of the rectum in children 3 or 4 years old.

Paralysis caused by Lead.—The iodide of potassium is recommended by R. H. Goolden, Esq. in paralysis caused by Lead.

Physiology.

Infusoria in woman's milk. By Dr. Vogel.

No general directions can be given as to whether a woman may suckle or not. In every case the question must be determined by an examination of the milk; and here the microscope proves eminently useful. The author found in that milk which produced sickness in the child, and destroyed the health of the mother after prolonged lactation, immediately after its removal from the breast, infusoria similar to those found in the incrustations upon the teeth (*vibrio bacillus.*) Such vibriones are found especially in women who menstruate, or suffer from hæmorrhages during this period, the good or bad aspect giving no important indication. The milk has often a fine thick white colour, or is of paler hue; its consistence may be either thick or watery; its reaction is often alkaline, but generally neutral. Under the microscope it exhibits, according to its richness, sometimes but few, at other times many, milk and cream corpuscles; these differ from the corpuscles of healthy milk by their pale yellow colour, their want of metallic lustre, and their speedy decomposition. As regards the infusoria, they are little rod-shaped bodies, dark in the middle, surrounded by a lighter line, but exhibiting neither head nor tail under a magnifying power of 600 diameters; there are, however, feet in great number and of considerable length. The movement of these animalcules was swimming, and occasionally it was very active. Forward movement was wormlike, and an annular structure of four rings was observed. Mostly they twist, screw-like, upon their axes. When they swim in a circle, they always move from right to left. The length is $\frac{1}{100}$ mmtr., their breath four times less. They are best seen when the milk is diluted with water. In ammonia, diluted acids. (even the lactic) they die immediately.

Children fed upon milk containing these infusoria, become sooner or later attacked by diarrhœa, and the evacuations are of a green colour. This condition disappears as soon as healthy cow's milk is substituted. The author believes that this effect does not proceed from the infusoria as such, but from the same cause which produces the infusoria, namely, a process of fermentation in the milk itself. The ferment is, according to him, the congested and increased heat in the breasts, connected with the general excitement of the sexual system.

But a fermentation, as Jul. Clarus observes, cannot be present, because the author always found the milk alkaline or neutral, and never sour. Were there fermentation, the evolution of lactic acid would, upon the author's own showing, have immediately destroyed the infusoria.—*Schmidt's Jhrb.*, 1853.

UPON SO-CALLED "WITCHES' MILK" (HEXENMILCH)

By Dr. SCHLOSSBERGER.

A specimen of the white milky fluid, often secreted from the mammary glands of new-born infants of both sexes, was lately obtained by the author from a boy who yielded about a drachm during the course of a few days. The fluid had the appearance of milk which had been watered; it reacted alkaline, and exhibited under the microscope the normal milk-corpuscles. It reacted strongly upon sugar; but did not coagulate by heat; it did so, however, upon the addition of acids and rennet. It consisted, in 100 parts, of water, 96·75; fat, 0·82; ashes, 0·05; casein, sugar, and extractive matter, 2·38. It was, in fact, a very thin, but truly chemically-constituted milk. The physiological signification of this secretion is unknown.—*Würtemb. Corr. Bl.*, 1853.

LUTRONOMIC EXPERIMENTS TO ILLUSTRATE THE ABSORBING POWER OF THE SKIN.

By W. KLETZINSKY.

The author endeavoured to elucidate some of the important physiological and therapeutical questions connected with the absorbing power of the skin in the following manner:—He ascertained the loss of weight which his body underwent, when fasting, during an hour's stay, in a vapourbath of 14—16° R., in the recumbent posture. It amounted to 3·43 ounces; which corresponds with the results obtained by Andral, Gavarret, Valentin, and Segum. Some days afterwards, at the same hour, he took a warm-water bath of 28—30° R. for an hour, when, after drying the body, he found that he had lost weight to the amount of 6·81 ounces, (as a mean in eleven experiments.) The

warm vapour-bath was, in another series of experiments, taken immediately after the warm-water bath when a loss of weight was observed, amounting to 5·72 ounces. The loss of weight was after the vapour-bath varied between 4—7 ounces; after the warm-water bath, between 5 and 9 ounces. The urine at the end of these experiments was concentrated, its specific gravity varying from 1025 to 1030. The body was next immersed in warmwater for three hours. There was an additional loss of weight of 2 to 3 ounces after the second hour, but an increase of an ounce or more after the third hour,—a fact explained by the imbibition of fluid by the cuticle. Mineral salts dissolved in the bath were not detected in the urine. Sulphate of manganese, iodide of potassium, borax, sugar of lead, etc., were tried in succession. The experiments were not more successful when a portion of the cuticle had been removed by a blister ; but the author found, that, after five minutes' gargling the throat with solutions of some of these salts, of the same strength as the bath-water, he could detect their presence in the urine next evacuated. Hence he concluded that the skin is impermeable to fluids within a reasonable time ; that, during a bath, the weight of the body diminishes more quickly than in the air ; that substances easily taken up by the mucous membranes find no passage through the uninjured skin ; and that the bath is not applicable as a means for introducing therapeutical agents into the organism.—*Wien. Med. Wchnschrft.*, 1853.

Pathology.

Consumption.—In the *Medical Gazette* of the 10th December four cases of consumption are related in which the expectoration of chalk was one of the earliest symptoms.

Dr. A. W. Barclay of Bruton-Street, Berkeley-square, says that altered condition of the blood is not essential in cholera as at the post-mortem examination of a serving maid who died of this disease, no local congestions of any organs were found which presented all the appearance of health except that they were bloodless.

Every Soldier in Her Majesty's 58th Regiment admitted into and discharged from hospital is carefully weighed, as it is supposed to give an idea of the severity of disease.

Midwifery.

Galvanism as an obstetric Agent.—Galvanism is recommended by Dr. Radford as an obstetric agent and is said to have been successfully employed by him in the following kinds of cases.

1.—In cases of tedious labour arising from uterine inertia.

2nd.—In cases of accidental hæmorrhage, either before or after the rupture of the membranes, and especially when exhaustion from loss of blood exists.

3rd.—In cases of "placenta prævia," in which the practice of detaching the placenta is adopted, and the vital powers are greatly depressed.

4th.—In cases of internal flooding before or during labour.

5th.—In cases of post-mortem floodings.

6th.—In cases of hour-glass or irregular contraction of the uterus.

7th.—To originate, *de novo*, uterine action, or in cases in which it is desired to induce premature labour.

8th.—In cases of abortion, when the indications show the necessity or justify the expulsion of the ovum.

9th,—In cases of asphyxia in infants.

Surgery.

THE REMOVAL OF A PARTICULAR KIND OF OPACITY FROM THE CORNEA.

By H. HAYNES WALTON, Esq., F. R. C. S.

In a woman, the centre of each cornea, to an extent a little beyond the pupil, (the left eye being the more affected,) was occupied by a dense opacity, slightly raised, and which gave in profile somewhat the appearance of "conical cornea." The form of each was irregularly spherical, with sharp outline. The colour, French-white, with dots or mottlings, not unlike those which appear on the back of the cornea in the affection called "aquo-capsulitis." Altogether, the appearance was peculiar and striking, differing from that of ordinary opacity, and conveying the idea of being due to a deposit of a substance probably cretaceous. The remainder of each cornea was transparent; otherwise the eyes seemed healthy. When the pupils were dilated, she could see to move about in the house alone; but there was not sufficient sight for any employment.

The miniature gouge was employed in removing the opacity by picking it away. The operation was performed six times on the right, and twice on the left at intervals of a month, till the anterior elastic laminæ were removed. Vision became almost perfect.

Popliteal aneurism.—A case of popliteal aneurism in St. George's and another in St. Bartholomew's hospital were cured by interrupted compression of the femoral artery. This treatment in a case in St. Thomas's hospital failed, and recovery followed the application of ligature. In a case in the London hospital compression failed; ligature of the femoral was had recourse to; and death followed suppuration of the sac extending into the joint. In the same hospital, a case of traumatic aneurism of the middle third of the femoral artery was treated by compression and subsequent application of ligature but the tumour continued to pulsate and yet the patient was able to walk

considarable distances. The failure of the ligature, to arrest pulsation in the tumour is attributed to the compression having established a collateral circulation. In the Nottingham General Hospital, a case of popliteal aneurism was cured by compression in sixty hours. Two clamps were applied, one over the pelvis and the other on the upper third of the thigh, and they were alternately tightened while the leg up to the knee was carefully bandaged. In the University College Hospital a large popliteal aneurism was cured in six weeks' time by compression over the outer margin of the pelvis, and over the middle of the thigh. The limb as far as the knee was carefully bandaged. Small quantities of blood were occasionally abstracted and the tincture of digitalis was given. In St. Bartholomew's hospital, aneurism of both popliteal arteries was cured by compression in periods respectively of four and eight days. In the Exeter Infirmary, traumatic aneurism of the anterior tibial artery was cured by compression in three weeks. In two provincial hospitals, treatment by compression in two cases of popliteal aneurism was abandoned after some time on account of the great pain and swelling produced. During the subsequent application of a ligature to the femoral artery in one of these two cases a large vein was wounded and profuse bleeding occurred. The patient afterwards died of gangrene of the limb. In the other case after tying of the femoral, sloughing of several toes took place, but the patient recovered. Mr. Edye under whose charge it occurred, attributed the sloughing to the disturbance of vascular supply caused by the previous compression,

Gum-bandage.—Mr. E. J. Franklyn, Assistant Surgeon of the 46th Regiment, recommends the use of the gum-bandage in cases of fracture. The bandage must not be put on till the swelling has subsided.

Chronic-ulcer.—Mr. Teale of the Leeds General Infirmary, cured a chronic ulcer of four years' standing by making a perpendicular incision through the skin, on each side of the ulcer. In one month from the time of operation, the ulcer, as well as the incisions were healed.

Mr. Chalk relates a case in the *Medical Gazette* of the 10th December of the ulcer of the rectum cured by simple incision of the mucous membrane as recommended by Mr, Quain.

Therapeutics.

Pityriasis versicolor.—This disease known by the name of "liver spots" and called chloasma by Wilson is said by Mr. Paget of St. Bartholomew's to be invariably cured by him by the regular application once daily of a wash of the bichloride of mercury (grj. ad ℥i.) In relation to this mode of cure, and to the evidence made out at the Skin Hospital, that the disease is not unfrequently contagious, it is important to connect the observation of Eichshedt and others, as to the eruption depending on the presence of a cryptogamic plant.

Iodide of zinc.—A new drug, the iodide of zinc, has been employed with success in chorea, struma, cachexia, and some forms of hysteria.

It was given in the form of syrup, the dose of which is the same as that of the iodide of iron.

Galvanism in Ununited Fracture.—In the York county hospital, the employment of galvanism by introducing a needle from each side of the limb into the interspace between the bones, and then passing a continuous galvanic current through proved successful in a fracture that had existed for more than a year.

Sesquichloride of iron.—This remedy has proved very successful in the London hospitals in the treatment of Erysipelas.

Ætherial solution of iodine.—This is said to be a much more powerful counter-irritant than the spirituous solutions.

Aconite.—As a local anodyne, aconite is said to act very powerfully.

Saccharine carbonate of iron and Magnesia.—Dr. S. T. Speer of Edinburgh confirms the assertion of Mr. Petrequin that cases of anæmia which had resisted the administration of iron alone, yielded rapidly to a combination of this metal with manganese and he recommends the saccharine carbonate of iron and manganese which is made in the following manner:

Take of finely powdered sulphate of iron, ℥iij. ʒj.; carbonate of soda, ℥v.; sulphate of manganese, ℥j. ℈j.; white sugar, ℥iiss.

Dissolve each of the three first-mentioned ingredients in a pint and a-half of water, add the solutions, and mix them well; collect the precipitate on a cloth, filter, and immediately wash it with cold water; squeeze out as much of the water as possible, and, without delay, triturate the pulp with the sugar, previously reduced to a fine powder. Dry it at a temperature of about 120° Fahr.

The compound thus prepared, is a powder of reddish-brown colour, and devoid of all taste, save that imparted by the sugar, with which the salts of the two metals are conjoined. The dose is 5 grs., gradually increased up to ℈j., three times a-day; it should be given with the meals, or at least immediately after.

In cases of uterine leucorrhœa occurring in pale, debilitated, anæmic females, the saccharine carbonate of the two metals will be found very useful, he says, when given with powdered ergot of rye.

Extract of Bullock's blood.—Professor Mauthner recommends in the chronic anæmia of children, the extract of bullock's blood, prepared by straining the fresh blood through a horse-hair sieve, and evaporating it to complete dryness in a sand-bath. Dr. Speer recommends this preparation in combination with his powder, for anæmic children. Fifteen grains of the former and three of the latter make a dose that is to be given after each meal.

MADRAS JOURNAL OF MEDICAL SCIENCE.

FEBRUARY, 1854.

Our brethren must feel highly flattered by the praiseworthy mention made of them in the Minute of the Hon'ble Mr. Eliott. The following are his words. "But I would just point to the high character which many of the East Indians in the class of Medical Subordinates have attained, both for professional ability and for integrity." Speaking of the East Indians in general; he says, that he "would lay appointments open to competition, and give them to the best men without distinction of race or colour, or place of birth or education."

If the Subordinates can get many in power to entertain as high an opinion of them as the Hon'ble Mr. Eliott does, they may with reason expect soon to have their condition bettered. The principles that he is guided by in the choice of public servants, are those alone that can ensure for any service the best qualified, and unless they are adopted by those who have it in their power to confer appointments, they cannot be strictly doing their duty, but must be obliging others, or themselves reaping advantages at the expense of the Government that they belong to. The sentiments that he has penned, are the emanations of a noble, liberal, and an unbiased mind. They are the manifestations of a soul, aspiring and expecting, to become something higher than Man.

Dr. Key, who has left Madras for England, carries with him our best wishes for a safe and pleasant voyage, and a perfect restoration of health—the bad state of which, we believe, was the principal cause of his departure—before the termination of it. We were surprised by the announcement that he was to leave by the Steamer "Ganges," for we had been previously informed that he was going in a sailing vessel. This information, at the time it was received, was correct—a berth having been engaged—but our late Superintending Surgeon changed his determination, having been advised to do so here, and hav-

ing received information that a good appointment had been obtained, and was kept open for him at home. An address from the Subordinates at the Presidency was about being presented to him, but his sudden departure was the cause of it not having been done, and of disappointment to those, who thinking that he would not embark so early in the day as he did, intended wishing him a farewell.

Dr. Key is as much a friend to the Medical Subordinates, as Major Maitland is to the Corps of Artificers. Both of them strictly exacted a correct performance of duty, and thus called forth the energies and capacities of those under them, which is the best manner of befriending any body of men. And if one has not done as much as the other, perhaps it is owing to that one not having been in as favorable a position, and not having as much power. However, the present state of the College we are told, is in a great manner owing to the exertions of Dr. Key on its behalf, who set his heart as it were, on it; and he, equally with Drs. Mortimer and Harding, has earned for himself, and well deserves, a niche in the building. But Dr. Key did more for the Subordinates themselves, than either of the former Gentlemen. To advocate the cause of those low in position, and to endeavour to advance them against all opposition, requires the possession of some moral courage, and a good deal was displayed by him. We have reason to believe that his good intentions towards the Departments, both Commissioned and Warrant, will not cease with his departure from us, and regret that there was not an opportunity for the Subordinates to show their gratitude to him who allowed the equal right of all, to be advanced to higher positions through their abilities. We wish him a long and happy life in the land of his birth.

The Report of the Apothecaries' Fund for the year 1852-53, has appended to it the valuation of the Widow's branch, as appraised by Mr. W. Grant.

Mr. Grant says that the Fund on the 30th April 1853, was insolvent to the extent of Rs. 80,818. He arrives at this conclusion by adding Rs. 1,18,607—the sum of money which, if the

Subscribers had resolved to close the Fund, they would have had to set apart on that date, bearing interest at the rate of 4 per cent. per annum, as the value of absolute pensions of 46 widows then incumbent on the Fund, so that both capital and interest may be exhausted by the time the widows became extinct ;—to the sum of Rs. 7,521, the then present value of the contingent pensions to re-married widows ; and to Rs. 1,72,094, the value of the pensions to future widows of living Members ; and showing that the assets—comprising the vested capital, amounting to Rs. 1,29,935 ; the value of the Members' subscription, Rs. 86,226 ; and the sum of Rs. 1,243, recoverable from some of the pensioned widows ; amounting in all only to Rs. 2,17,404,—fall short of the liabilities Rs. 2,98,222, to the amount of Rs. 80,818, the extent of the insolvency.

There are, we are told, three ways, by which this deficiency may be made up. The first is by a special contribution ; the second by increasing the amount of subscription ; and the last by reducing the pensions of the present incumbents, and prospectively of those who may become such. To the two first methods there can be no objection, if inability on the part of Subscribers, to meet the demand, does not exist ; but, by pursuing the last, an unjust, if not a dishonest act will be committed against the widows. Their husbands died in the belief that their wives on becoming widows, would receive the full amount of pension specified in the Regulations of the Fund they subscribed to, and as they were informed by those Regulations, that a certain amount of pension would be given to their widows, for subscriptions paid by them, they were justified in entertaining this belief. Reducing the amonnt of pension, after that of subscription—the value of it—has been received, cannot be an act of justice. As in all contracts both parties to them are bound to fulfil their respective engagements, so in this particular one are we compelled to perform ours, the departed Apothecary having executed his. We feel certain that none will propose the adoption of the last measure, for those famous for gallantry, will not quietly see the widow oppressed.

We are told that the present constitution of the Fund is not sound, and the measures recommended as likely to make it so are, increasing the amount of subscription of those in the superior grades, so as to make it proportional to the benefit held out to their families, and substituting a marriage or disparity premium, to be paid by every Subscriber, in proportion to the difference of age between himself and his wife, for the present donations. As it has been shown, that the subscriptions of the Apothecary and 2d Apothecary, are below the sums proportional to the rates of pension held out to their families, and that the donation paid by the Assistant Apothecary, is about double the amount of premium he should pay in addition to his subscription, to secure the present amount of pension to his widow ; the cause of the insolvent state of the Fund is clearly seen, and should be speedily removed. This is not the first time that we heard it said, that those of the superior grades, were paying less than the value of the pensions to be received by their widows. Messrs. Hogg and Flynn, frequently mentioned this fact at the Meetings of the Subscribers, and as many times as they proposed that the subscriptions should be properly adjusted, so often were their schemes rejected. Both of them have left us. One is gone to Australia, and the other is doing a very good business on the Mount Road.

The Subscribers we fear will find it hard to make the special contribution, mentioned in para 5 of the Report. We call upon them to observe the low rate of interest that is obtained for the capital of the Fund, and would advise them to take into consideration the feasibility of procuring a higher one, by lending out the capital on good security. No apprehension of loss need be entertained, if the business be conducted in a proper manner. By allowing the money to be given out as loans on good security, 9 per cent. can be procured. To guard against loss, a Lawyer—whose duty will be to examine into and pronounce upon the value of the securities offered, and to give advice regarding loans—can be engaged. He can be well paid if he agrees to make good any loss that the Fund may sustain through him.

The interest of the present capital of Rs. 1,30,442, at the rate of 4 per cent., is Rs. 5,216, and as the disbursements for the last year amount to Rs. 13,717 15 10, we see that the capital has been drawn on to the extent of Rs. 8,501 15 10. But if Rs. 80,818 be added to the balance of last year, and we can get 9 per cent. for the whole ; after setting aside 1 per cent. for expences, the disbursements will be less than the amount of interest, by Rs. 3,179, which can be added to the capital. After a few years at this rate, the Fund will have an immense capital,

and become like Lord Clive's, which requires no subscriptions. The Subscribers may thus be enabled to establish a comfortable Retiring Fund.

Whatever means they may adopt to remedy the sinking state of the Fund, we feel confident that they will not reduce the present amount of pension received by the widows, or prospectively of that held out to the wives of existing Members. And there is not the less certainty of the Fund being speedily placed on a sure and firm basis, for they may well say of it, "it is our pride, and the support of the widow." In a man's last hour, that which affords him the most consolation—next to the consciousness of having spent a useful life—is the knowledge of having provided for those most dear to him, and whom he is about leaving behind.

It is to be lamented that justice is frequently defeated by the want of forethought, in those who should make it their duty, to do as much as lies in their power, to further its ends. Two men from Palaveram are to stand on their trial at the next Sessions charged with the crime of murder, but from the manner in which the contents of the stomachs of the deceased were sent to be tested, the evidence against the prisoners, is not likely to be strong enough to warrant the finding of a True Bill, though Arsenic, we believe, was found in the contents of both stomachs.

While the ability displayed by the Chemical Examiner, in the detection of arsenic, during his lecture on that substance, convinced those present that there was not the slightest chance of escape through him, for the murderer who might make that poison the instrument of his crime; their admiration was excited by the careful manner in which he performed the several tests, and by the caution observed by one so able, in giving his opinion. When we were told that zinc and sulphuric acid often contain arsenic, and that these substances should invariably be examined before being made use of in the Hydrogen test, we could not help thinking that a few, though innocent, may have suffered by the non-observance of this rule.

The Professor of Medical Jurisprudence laid down the following rules, as those that should be observed in all cases of poisoning. The matter vomited, or the stomach, or its contents, should be carefully placed in a clean glass bottle—stone jars will not do, because the glaze used in making them may contain poison—and this vessel should have its mouth covered with two or three pieces of bladder. The bottle is then to be sealed, and forwarded with a letter, containing information on

the subject, and having the same seal in it. The Professor says that every measure should be taken to bring a criminal to justice, for when one escapes, he gains confidence, and repeats the crime till he does it in an *Artistic* style.

Table-turning has been the cause of many melancholy results, and the insane condition of one of the ladies of Madras is said to be one of them. It appears that during the night, she applied to the three-legged stool for some information regarding her departed husband, and that her present deplorable state is the consequence. If a weak female, whose health has suffered by sorrowing for her husband, and is thus thrown into a nervous state, goes at dead of night, to try such an experiment with her imagination excited, we cannot wonder at her losing her senses. The replies received, were not made through spiritual agency, but by the hands of the unconscious operator being governed and directed by an *overruling idea*. The stools used for this purpose are very small and light, and capable of being easily moved in any direction. It is likely that they are made with three legs to facilitate movement, or perhaps the idea was borrowed from the tripod, from which the Priestess of Apollo delivered oracles.

The article on Electro-Biology, and some notes of a lecture on Physiology, delivered by Professor Smith, herewith appended, are likely to dispel the belief that many entertain, that these stools are moved by spiritual agency.

*Cerebration, or the Ideo-motor function of the Cerebrum.**

The Ideo-motor function of the cerebrum may be defined to be a temporary suspension of volition, and the predominance of a strong idea over the action of the voluntary muscles. The muscles in ordinary cases act in obedience to volition, but if a power, as an absorbing intense idea, can be exerted on the mind, which, for the time interferes with and overpowers the will, the voluntary muscles act in correspondence with the idea, and adapt themselves to it, in preference and in opposition to the will, which under such a condition becomes totally inactive and suspended. The operation of a strong idea may be seen in the following simple experiments. Suspend a string to which a button is attached, between the thumb and forefinger, and swing it at first in any direction you please, while thus swinging, if the attention be summoned, and the mind be called upon to believe that the direction will change, the change will be accomplished without the slightest volitional effort. If

* Contributed by a Student.

again the button be suspended in the middle of a tumbler, without touching its sides, it may be made to strike any number of strokes, without any voluntary assistance on the part of the experimenter, provided a sufficiently vivid idea, or anticipation that it shall do so, be previously formed in his mind. And again, if a straw be held steadily between two fingers, and another be laid across, the latter may be made to move up and down from one finger to the other, without any voluntary effort, when the mind has been strongly impressed with the idea that the movement will occur. The explanation of these phenomena is, that the intense expectation of the result produces an action of the voluntary muscles, sufficient to accomplish the movement expected, independent of, and even in opposition to, the will.

Dr. Carpenter has applied this peculiar function of the cerebrum, to the explanation of the phenomena of Electro-Biology, Animal Magnetism, Mesmerism, Hypnotism, and the Odyle force of Baron Reichenbach. These phenomena are not originated by any force, virtue, or influence, communicated from the operator to the subject; but depend on the temporary abeyance of the will of the latter, and on changes in his nervous system, induced by the influence over his mind, of an idea, which is suggested by the operator. The subject sits, stands, and walks, just as he is directed, not from any power possessed by the operator over him, but because his volition being lost, his voluntary muscles obey the idea which these commands develop.

Further instances of this function are the following. A child when it first attempts to walk of itself, will fall, if its confidence in its capability of walking without support, be interfered with, by the idea being excited by frightening it with a sudden exclamation. Again, a man is capable of walking with the greatest ease on a track that is not more than a span wide on the level of the ground, but he loses his balance and falls, if he attempts to do so on the same track, if it be elevated 30 or 40 feet above the ground; because the idea that a fall is inevitable, so overcomes his volition, that his muscles lose the power of sustaining the equilibrium of his body. A person who mounts a horse without the slightest confidence in his capability of sticking on the animal's back, will to a certainty be thrown out of his saddle; while another, equally inexperienced in horsemanship, but with more assurance, retains his seat, because his confidence secures the requisite action of his muscles. For a similar reason, if a Surgeon be not confident in his fortitude of mind, and ability to perform an operation, with success and without damage to the patient, he will surely fail.

The operation of this function is also observed in what is called "watchful expectation," that is, watching with the expectation of a result. If the attention be fixed, and a strong idea be raised in the mind that a pain exists in any part of the body, the nerves become so completely influenced by this idea, that pain is actually felt, even inflammation may be thus set up. Mesmerisers take advantage of this function in the cure of diseases; and Mr. Braid, the celebrated operator, has recorded cases of obstinate obstipatio, amenorrhœa, and other diseases which were thus relieved. The cures in these cases did not depend on any influence communicated to the patients from the operator, but on the healthy curative action of the nerves, set up by the firm and certain expectation of a cure.

A popular use is made of this function by a class of people, Knewzas or "thief catchers." The thief catcher, by certain arts and tricks well known to his fraternity, impresses the parties suspected, with a thorough belief of his power of detecting the thief. They are then made successively to raise a tumbler filled to the brim with water, to their mouths, and are told that the thief will be totally unable to do this steadily, and without spilling the water. Those who are innocent, undergo the test with the greatest ease; but the guilty man, impressed with the idea of his perfect inability of passing the ordeal, trembles, spills the water, and is instantly detected.

Original Communications.

CHOLERA EPIDEMICA.

Nursoo, æt. 26, No. 11260,

8th January 1854.—Admitted this morning at 10 o'clock, complaining of having been purged and vomited several times yesterday. *Present symptoms.* Eyes sunk; pulse almost imperceptible; skin cold and clammy; voice low; countenance expressive of great anxiety; respiration short; tongue foul; abdomen slightly distended and painful; thirst urgent; no cramps.

℞ Ammonia sesquicarb grs. v.
Sodæ sesquicarb grs. v.
Spts. æther nit. m. xx.
Aquæ ℥j m. ft. haust.
To be given every 2d hour.
℞ Acid nit. dil. ℥j.
Aqæ Oj. m. ft. potus.
To be given frequently.

Apply sinapism to abdomen, and turpentine frictions to body.

12 *a. m.*—Pain of abdomen relieved by mustard poultices. Had not been purged nor vomited since admission ; other symptoms much the same.

Cont. Remedia.

Vesp.—Had two copious congee-like motions at 2 p. m. Passed no urine since admission ; pulse weak and fluttering ; skin still cold ; thirst relieved.

℞. Ol Terebinth ℥ss.
Mucilag. q. s. m. ft. haust. s. s.
Cont. turpentine frictions.

6 *p. m.*—Passed two watery stools, and vomited once a little undigested rice. In other respects is much the same.

Cont. stimulants.

12 *p. m.*—Had one motion, scanty and watery, pulse small, skin cold. Passed a large quantity of clear urine.

Cont. Remedia.

9*th* 6 *a. m.*—Feels weak, bowels were not opened since last report, skin dry and furred, skin cold, looks dull and heavy.

Cont. turpentine frictions.
Rept. Ol. Terebinth.

10*th.*—Had four scanty motions last night, of a dark color ; urine copious and clear ; skin still cold ; pulse small ; is weak and sleeps indifferently.

Cont. stimulants.

11*th.*—Passed five motions yesterday of a dark green color, skin warm and dry, pulse quick, tongue furred, complains of severe pain in the abdomen, takes his congee well.

R Ol. Ricini ʒss.
,, Terebinth. ʒij.
Aq. menth. pip. ℥j m. ft. haust.
Apply foment. to abdomen.

12*th.*—Bowels were four times moved yesterday by the purgative; stools of natural consistence and color; passed four large worms (lumbric.); continues weak, tongue clean, pulse and skin natural.

R Inf. Gentian ℥i
Træ Gent. ʒss. m. ft. haust.
To to be taken at Noon.

13*th.*—Had two stools last night of a dark color, complains of pain in the abdomen, skin clean, pulse small.

R Ol. Ricini ʒiv.
,, Terebinth. ʒij.
Aq. menth. pip. ℥i m. ft. haust s. s.

14*th.*—Passed three greenish stools last night, pain of abdomen better, skin clean, pulse and skin normal.

R Pulv. Gregorii grs. xv.
Sodæ sesquicarb grs. x.
Aq. m. pip. ℥i m. ft. haust. s. s.

15*th.*—Continues weak; bowels regular; stools good; skin clean; sleeps well. Appetite variable.

R Inf. Gent. ℥i.
Acid. nit. dil. m. v ft. haust. s. s.

17*th*—Is doing well; pain of abdomen returned; bowels regular; tongue foul.
Apply sinapism to abdomen.

R Pulv. Gregorii ʒi
Aq. menth. pip. ℥i m.ft. haust. st. s.

19*th.*—Continues weak; looks dull; bowels regular; tongue clean.
Cont. Tonics.

21*st.*—Is improving daily; functions normal.
Omit Tonics.

23*d.*—Quite well: discharged.

CHOLERA.

Vencata, æt. 35, No. 11155.

30*th Nov.* 1853.—Admitted this morning, complaining of having been purged and vomited several times last night. *Present symptoms.* Pulse imperceptible ; skin cold and clammy ; voice sepulchral. After admission, he vomited and purged once ; stool copious and watery. Has cramps of the lower extremities ; no pain in the abdomen. Thirst urgent.

Oil of turpentine ℥j.

Yolk of egg q. s.

To be given immediately, and to be repeated if necessary.

9 *a. m.*—Rejected the oil of turpentine almost immediately after taking it. Had two copious watery motions, countenance expressive of great anxiety. Stimulants.

Cont. Turpentine.

12 *a. m.*—No vomiting ; passed one copious congee-like motion ; no pulse ; breathing quick and short ; calls frequently for cold water ; says he feels very hot, will not allow any cumblies to be on him.

Cont. Remedia.

To have cold water with soda sesquicarb.

2 *p. m.*—Complains of a severe pain in the abdomen ; passed a scanty watery motion involuntarily ; no urine voided since admission. Pulse and skin much the same.

Cont. Medicines.

4 *p. m.*—Passed two watery brownish motions with 34 *worms* of different sizes, says the pain in the abdomen is shifting high up towards the chest. Breathing oppressed and difficult ; skin very cold ; no pulse.

Cont. Remedia.

5½ *p. m.*—Is evidently sinking. Breathing more oppressed and very laborious.

Expired at half past six.

Post Mortem.—12 hours after death, on opening the abdominal cavity, the intestines both large and small, as well as the

stomach, were found to be clogged with worms, and highly congested, other viscera were normal.

A. L. XAVIER.

Psora et Pneumonia.

Rajanah, æt 40, Tent Lascar.

Admitted on the 10th of November, with numerous sores scattered all over the body. Has also an ulcer on the palm of right hand about the size of a rupee, discharging a very acrid offensive fluid. Bowels said to be regular. Pulse and skin natural.

To have M. Hardy's compound sulphur ointment rubbed in morning and evening for four days.

R P. jalap co. ʒi st. s.

On the four following days he had an attack of fever, occurring regularly at night, passing through its several stages, and terminating in profuse perspiration. Has also a slight cough. Omit the ointment, and let him have bark ʒ jat intervals of three hours before the fever comes on.

On the 15th, I found the patient in a fearful fit of coughing. After this ceased, he was left in an extremely exhausted state, and his breathing was very laborious. The cough and dyspnœa came on, as the patient stated, shortly after midnight. On applying the stethescope to the upper lobe of right lung, crepitation was distinctly heard. In the lower lobe of left lung, respiratory murmur was scarcely audible, and loud mucous rale was heard all over it. Pulse rather full and accelerated.

To have a warm bath immediately, and to be followed by,

Calomel gr. vj.

Opium and

Tartar emetic, each gr. i. in a pill every 4th hour.

In the evening he was no better.

A blister to the anterior part of chest.

16*th Nov.*—The blister gave him a little relief, and he felt a great deal better last night. At present he is as bad as yesterday, if not worse. Crepitation now is heard in both lungs.

Continue the pills.

In the evening, twenty grains of ipecacuanha were given; to be followed up by two grains of tartar emetic, if the ipecacuan does not act. These remedies were given with the view of relieving the laborious respiration, by a discharge of the great quantity of mucus that existed in the trachea and bronchi.

He continued to grow gradually worse and worse during the night, and died in a comatose state, at about 2 p. m. of the 17th November.

Autopsy, 2 hours after death.—Thorax, on opening the chest, the lungs did not collapse but remained fully distended under the pressure of the atmosphere. Left lung was adhering firmly to the parieties of the chest in a great part of its extent. Portions of the surface of the lung were covered with fibrinous exudations, and there was a small quantity of serous fluid in the pleural cavity. Lower lobe of lung was firmly hepatized, upper was slightly ædematous. Right lung was emphysematous throughout.

Heart.—The surface of this organ exhibited a considerable quantity of fat, especially that of right ventricle, which was dilated and its walls attenuated. Walls of left ventricle were greatly hypertrophied. The heart was much enlarged.

Abdomen.—Stomach and intestines were much inflated. Right lobe of liver was enlarged and presented a conical form, having a deep longitudinal cleft in the most convex part. The structure was firmer than normal. The other abdominal viscera presented nothing abnormal.

Remarks.—The only malady which this patient seemed to suffer from on admission, was itch; but the extensive lesions observed on the inspection of the body after death, leave us no room for doubting that both pneumonia and pleurisy existed in a latent form for weeks before his admission. The latent

nature of pneumonia is beautifully exhibited in this case. Here were two diseases of whose existence, there was not the slightest trace, until when too late, our best remedies failing to arrest their progress. Pleurisy had, on some previous occasion done its work, and was still working, effusion, newly exuded, of lymph, was observed over almost the entire surface of the left lung. It is extremely probable here, that both the diseases would have gone on progressing, without exhibiting any observable symptoms, and perhaps deprived the patient of life when least expected. Perhaps we might remark that the irritation set up by the application of the sulphur ointment, tended to develop the pneumonia.

The state of the left lung was precisely indicated by the stethescope. The crepitation heard in the right lung was due to the emphysematous state of that organ, which was enlarged. The sound was not so fine as the crepitation in the left. This condition of the lung was induced no doubt, from its having more work to perform in consequence of the diseased state of the right. The disease terminated as it always does, in coma, the result of asphyxia.

R. Harvey.

ASCITES.

Yellee, æt. 30, 25th November 1853.

Abdomen is considerably enlarged, and it fluctuates on percussion. Skin cool, pulse quick, tongue foul, urine very scanty. Menstruation is said to have ceased a year ago, and the disease to be of two years' duration.

Up to the 8th of January 1854, the treatment pursued without effect, consisted of purgatives, tonics, and diuretics; and in the evening of this day, the operation of paracentesis abdominis was performed. 37lbs. of serum and ℥ij of pus were drawn off. The abdomen was very tightly bandaged, and the following medicines administered every 2d hour.

Spirit Ætheris nit. ℥ss.

Tinct. scillæ m. v,
Mist. camphoræ ℥j m. ft. haustus.

She took a dose of jalap early the next morning, and was kept from using fluids, except in very small quantities.

From the 11th, she took half a drachm of turpentine with some peppermint twice a day, and two grains of the sulphate of iron at noon. The turpentine was continued up to the 28th, after which no treatment was pursued, the patient not being in need of it.

Remarks.—This woman was completely cured, for there was not the least effusion in the abdomen on the day that the treatment was discontinued. The non-return of the disease, is, I think, to be attributed to the bandage round the abdomen being constantly kept quite tight, and to abstinence from drinks, while the diuretics and purgatives were draining the system, and making means of escape for the fluid that had a tendency to be effused into the abdomen.

E. Avery.

ARTERIAL VARIETIES.

Communicated by James Keess.

Demonstrator of Anatomy, Medical College.

In six subjects that were brought to the dissecting room of the Medical College during the present dissecting season, the origin and course of the large vessels from the arch of the aorta, were found to be unusual.

Description of Fig I.—The *right carotid* was given off at a point corresponding with the lower border of the first costo-sternal articulation from a short trunk, common to it and the left carotid. It ascended obliquely to the right, lying on the trachea in the middle of a line drawn between the upper border of both clavicles, and curved round the trachea, getting to its right side about an inch above the right sterno-clavicular articulation, whence it proceeded perpendicularly to the upper border of the thyroid cartilage.

Fig. 1.

A—Aorta.

1—Common trunk of the carotids.

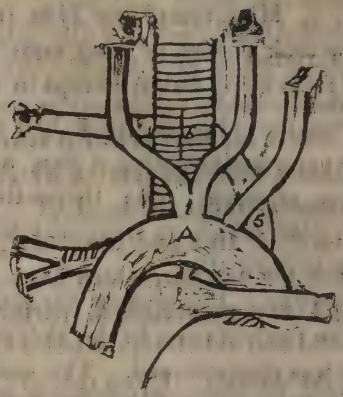
2— Left carotid.

3—Right carotid.

4—Left subclavian.

5—Right subclavian.

6—Incision for tracheotomy.



The *right subclavian* came off, at a point corresponding with the middle of the left half of the 3rd dorsal vertebra, from the posterior aspect of the arch of the aorta, below the origin of the left subclavian, passed obliquely behind the trachea, and œsophagus, in front of the bodies of the 2nd and 3rd dorsal vertebræ, and took a deep course to its usual position on the first rib.

The *right* and *left* carotid arteries came off from a short trunk, which replaced the usual arteria innominata.

Remarks.—From this description it will easily be understood how the right carotid and subclavian appeared to embrace the trachea and œsophagus.

The operation for tying the right subclavian in the first part of its course was performed on this body, by Dr. Smith, Professor of Anatomy, previous to its distribution to the Students, and it was the absence of the artery from its usual position when he was cutting down for it, that first drew attention to this variety.

The operation for tracheotomy was also performed on this subject, and, when the neck was afterwards dissected to trace the course of the right carotid, this artery was found lying immediately at the sternal extremity of the incision that had been made in the cartilaginous rings of the trachea. This is one in-

stance, out of many others, which shews the necessity for caution in operating in the vicinity of large vessels which are liable to varieties in their origin and course.

As the subclavian artery is sometimes tied in the first part of its course for the cure of Aneurism, it may not be out of place to insert here, the remark which appears in Wilson's Manual of Anatomy, under the head of "varieties of the subclavian arteries." "In a case of subclavian aneurism on the right side, above the clavicle, which happened during the summer of 1839 Mr. Liston proceeded to perform the operation of tying the carotid and subclavian arteries at their point of division from the innominata. Upon reaching the point where the bifurcation should have existed, he found that there was no subclavian artery. With that admirable self-possession which distinguishes this eminent Surgeon in all cases of emergency, he continued his dissection more deeply, towards the vertebral column, and succeeded in securing the artery."

Description of Fig. 2.—The *left carotid* was given off from the left side of the brachio-cephalic, a little above its origin from the arch of the aorta, rested on the trachea for the lower two-thirds of its extent, and divided into external and internal carotid at the lower border of the cricoid cartilage. The bifurcation of the right common carotid took place at the upper border of the thyroid cartilage, as usual.

The *left vertebral* took its origin from a short trunk common to it and the left subclavian, which sprung from the arch of the aorta. It ascended to the space between the transverse processes of the 5th and 6th cervical vertebræ, resting on the lower rings of the trachea, then on the left side of the bodies of the 1st dorsal and 7th cervical vertebræ, and transverse process of the 6th cervical.

In this case, there were only two branches given off from the arch, one giving origin to the right subclavian, right and left carotid, and the other, to the left vertebral and subclavian.*

* Two out of the four varieties were of this description.

Fig. 2.

A—Aorta.

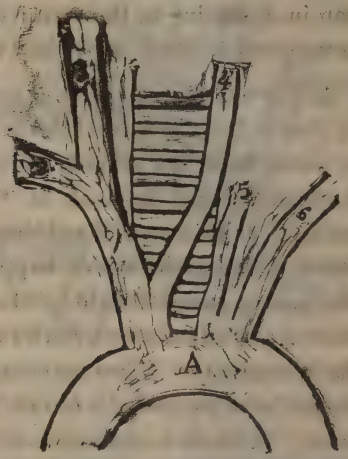
1—Arteria innonimata.

2—Right subclavian.

3—Right carotid.

4—Left carotid.

5—Left vertebral. } From a common trunk.
6—Left subclavian. }



The third variety that came under notice this season resembled the preceding one, with this difference, that the left vertebral was a branch of the subclavian.*

These varieties are described in Quain's commentaries on the arteries, and are delineated in his volume of lithographic drawings, by Maclise.

The accompanying wood-cuts were kindly executed by Mr. R. Wilkins, Assistant Apothecary, 50th N. I.

Preparations of these varieties are placed in the Anatomical Museum of the College.

[As Quain's Commentaries and Plates on the Arteries are not within the reach of all of our readers, a description of these varieties was written at our special request, to bring an important fact to their notice.—Ed. M. J.]

Literature.

THE FIRST ORDER OF MAMMALIANS.

Bimana, or Man.

Man forms but one genus, and that genus the only one of its order.

Peculiar conformation of Man.

The foot of Man is very different from that of Apes: it is large; the leg bears vertically upon it; the heel is expanded beneath; his toes are short, and but slightly flexible; the great

* Three instances of this variety presented themselves.

toe, longer and larger than the rest, is placed on the same line with and cannot be opposed to them. This foot, then, is proper for supporting the body but cannot be used for seizing or climbing, and as the hands are unfitted for walking, Man is the only animal truly *bimanous* and *biped.*

The whole body of man is modified for the vertical position.

Were he to desire it, Man could not, with convenience, walk on all fours: his short and nearly inflexible foot, and his long thigh, would bring the knee to the ground; his widely separated shoulders and his arms, too far extended from the median line, would ill-support the four-part of his body; the head is heavier on account of the magnitude of the brain, and as the means of supporting it are weaker, for he has no cervical ligament, he could only maintain it in the same line with the spine, and then his eyes and mouth being directed towards the ground, he could not see before him; the position of these organs, is, on the contrary, quite perfect, supposing that he walks erectly.

The blood requisite for so voluminous an organ as his brain, being carried to it with too much violence, frequent apoplexies would be the consequence of a horizontal position.

Man, then, is designed to be supported by the feet only. He thus preserves the entire use of his hands for the arts, while his organs of sense are most favorably situated for observation.

These hands derive advantages from their liberty and from their structure. Their thumb, longer in proportion than in the apes, increases the facility of seizing small objects; all the fingers, have separate movements, which is not the case in any other animal not even in the apes. The fingers are of the exact lengths that enable their points to be in a line with each other when the hand is shut.*

Man, so highly favoured as to dexterity, is not so with regard to strength.

But this weakness even has been for him another advantage in obliging him to have recourse to those internal means—to

* Professor Smith's Lecture.

that intelligence which has been awarded to him in so high a degree.

No quadruped approaches him in the magnitude and convolutions of the hemispheres of the brain, that is to say, of that part of this organ which is the principal instrument of the intellectual operations. The smallness of the face, shows how slightly that portion of the nervous system which influences the external senses, predominates in him.

These external senses, however, moderate as they all are in Man, are yet extremely delicate and well balanced.

The forward direction of his eyes produces more unity in the result of his vision, and differs from that of quadrupeds. His nostrils, more complicated than that of apes, are less so than all other genera, and yet he appears to be the only animal whose sense of smell, is sufficiently delicate to be affected by unpleasant odours. His taste is more delicate and varied. The nicety of his touch results, both from the delicacy of his teguments and the absence of all insensible parts, as well as from the form of his hand, which is better adapted than that of any other animal for suiting itself to all the small inequalities of surfaces.

Man alone, of all mammalians, can articulate sounds. The short and moderately strong jaws of Man, and the size of his teeth, would scarcely permit him either to masticate herbage or to devour flesh, were these substances not previously prepared by cooking.

Man has thirty two vertebræ, of which seven belong to the neck, twelve to the back, five to the loins, five to the sacrum, and three to the coccyx. He has twelve pairs of ribs ; seven called true and united to the sternum, and five free, denominated false. His adult cranium consists of eight bones, and his face of fourteen. Each jaw has sixteen teeth ; four incisors, two canines, and ten molars.

Physical and moral developement of Man.

The ordinary produce of the human species is but one child at a birth. The period of gestation is nine months. The first

or milk teeth of the child begin to appear a few months after birth, commencing with the incisors. The number increases in two years to twenty, which are shed successively from about the seventh year, to be replaced by others. Four out of the twelve posterior molars which are permanent, make their appearance at four years and a half, four at nine years, and the last four are frequently not cut until the twentieth year.

Man rarely exceeds six feet, and seldom remains under five. Woman is ordinarily some inches shorter.

Puberty manifests itself by external signs, from the tenth to the twelfth year in girls, and from the twelfth to the sixteenth in boys.

After a life more or less prolonged, more or less agitated, more or less painful, old age arrives, with decrepitude, decay, and death.

The child needs the assistance of its mother much longer than her milk, whence results an education intellectual as well as physical, and a durable mutual attachment. The nearly equal number of individuals of the two sexes, the difficulty of supporting more than one wife, when wealth does not supply the want of power, intimate that monogamy is the natural condition of our species.

Man appears to possess nothing resembling instinct, no regular habits of industry produced by innate ideas ; all his knowledge is the result of his sensations, his observations, or of those of his predecessors. His knowledge is increased, and can be transmitted from generation to generation, while the other genera are always in the same state.

There are very different degrees of development, however, in Man.

The first hordes, compelled to live by hunting and fishing, or on wild fruits, and being obliged to devote all their time to search for the means of subsistence, and not being able to multiply greatly, advanced but slowly.

The multiplication of the human species, and its improvements in the arts and sciences, have only been carried to a high

degree, since the invention of agriculture and the division of the soil into hereditary possessions.

Man affords the only instance of a species continually at war with itself. Savages dispute their forests, and herdsmen their pastures, and civilized nations carry on war for the prerogative of pride, or the monopoly of commerce.

Circumstances, more or less favourable, have restrained the social condition within limited degrees, or have promoted its development.

Correspondence.

OUR VALENTINE.

To the Editor of the Madras Journal of Medical Science.

Sir,

I came across a piece of news extracted from an English paper, and contained in the fourth column of the last page of the *Athenæum* for the 14th of February, which was of a nature to give the Subordinates hopes of better times. It appears that there is something good in contemplation for the Subordinate branch of the Medical Service, and that the Members of it have to bestir themselves a little, to place themselves in a better position, if they can only get somebody to bear testimony to their usefulness and to help them on. They cannot do much for themselves, but must have *powerful* assistance from those able to render it, for it is not long since the Government wanted to know, if the charge of the Medical Stores in the Mofussil could not be given to the Subordinates, and was informed that it could not. Pray advocate the cause of our brethren and stimulate them to action.

Your most obedient servant,

14th Feb. Hope.

To the Editor of the Madras Journal of Medical Science.

Sir,

It was my intention to address this letter to the Medical Board and to bring to their notice the suggestion contained in it; but on reconsidering the matter, I have thought it expedient to produce my views through the medium of the journal, which is the organ of the Subordinate Medical Department, believing this to be the least offensive way of bringing them to the notice of the Board.

My proposal was suggested by the perusal of an article in the *London Times*, having reference to the College of Fellowships of Oxford and Cambridge. The writer states that two-thirds of the Students commence their career with the hope of eventually becoming Fellows, and altho' many fall off, still a very large number remains to contest for these appointments. A fellowship is said to be worth about 200£, besides boarding and lodging. The writer affirms that these appointments afford a constant stimulus to the Students, and as a demand constantly exists by casualties arising from marriage, vacancies are filled up by the best qualified men. So much for Fellowships. Now, a passing glance at the Subordinate Medical Service. For the last 5 years the Board have been making many laudable attempts to improve its efficiency.

This, they have achieved by the Mofussil lecture system, and have reported the same to the Court of Directors.

The Court express themselves highly gratified at the results, and the Governor in Council directs the publication of the Court's letter in General Orders, but the Subordinates attend these lectures mechanically and try to believe that all things work together for their good.

It has all along been my opinion that a vast deal of labor is expended in producing a simple result, viz. the keeping up of a high standard of proficiency among the Subordinates. They attend lectures all their life-time, on subjects, which have been already taught them by the Professors, of the Medical College.

Many of these Mofussil lectures are elementary expositions of the principles of medicines—lectures, which would perhaps benefit young Students, but certainly not men who have already been in practice for 15 years or so. Men, of 10, 15 and 20 years' service are reduced to the level of school-boys, and are frequently obliged to listen to the expositions of Medical doctrines by young men who have just been released from school-boy bondage. All thinking men either doubt the efficacy of the instruction imparted at the Madras College, or the utility of the Mofussil lecture system. The necessity for the latter clearly implies a defectiveness of the former. The vote of the Department itself is against this lecture system, as being too troublesome a method of effectuating their improvement, and who can find fault with them ?

I shall now make an application of the facts related in the first part of my letter. I would suggest the abolition of the Mofussil lecture system, and would supply its place by a stimulus to improvement far better and more powerful than any that has hitherto been tried, this stimulus to bear some resemblance to the system of Fellowships which obtain in England : for instance, the throwing open of 40 or 50 independent well-paid appointments to the Subordinates on their attaining a certain standard of qualifications. This will provide a constant and unfailing stimulus, and create an incessant competition. Those who will succeed to these appointments, will, of course, be the picked men of the service, and then, we have the advantage of having a host of intelligent competitors in the service who have attained the standard, but are awaiting vacancies. A measure of this kind will extend its influence to the Students of the College. Well educated and respectable young men will gladly offer themselves as Candidates for the service, in the hope of eventually succeeding to these appointments, and no one will deny how much the service, throughout all its ramifications, will benefit by such a measure.

Your's obediently,

Z.

THE MADRAS JOURNAL OF MEDICAL SCIENCE.

"I hold every man a debtor to his profession from the which as men doe seek to receive countenance and profit, so ought they of duty to endeavour themselves by way of amends to be a help thereunto."—Lord Bacon.

Selections.

The Blood—its Chemistry, Physiology, and Pathology. By Thomas Williams, M. D. Lond., Extra-Licentiate of the Royal College of Physicians; formerly Demonstrator on Structural Anatomy at Guy's Hospital, and now of Swansea.

(Continued from our last No.)

HISTORY OF THE MORPHIC ELEMENTS OF THE NUTRIENT FLUIDS IN THE ANIMAL KINGDOM.

It were here superfluous to enunciate the physiological cannon, that in the lower organisms the processes of fluid and solid organization are less complex than in the higher. The elements concerned are fewer in number—of the fluids this remark is especially true. The more simple the fluid, the more comprehensible the reactions which occur between its constituents. Problems too involved to admit of solution through the study of the blood of the highest animals, assume an intelligible, because less complex, expression in that of the lowest. This is the ground on which it is preferred to commence the present inquiry at the lowest link in the chain of animal life. Among the invertebrated animals, *two orders* of fluids occur, which are distinguished from each other in several striking respects. The first is the *chylaqueous fluid*;* the second is the *blood-proper*. The chyla-

* I would here desire to explain that in the paper 'On the Chylaqueous Fluid and Blood-Proper of the Invertebrated Animals,' published in Part ii. 1852, of the Philosophical Transactions, I have given at length the history of discovery upon this subject, and that, although the *present papers* are founded upon *entirely new* researches, they prove essentially confirmatory of the views and facts stated in the essay to which I have referred,

queous fluid is always contained in the great splanchnic cavity, which is bounded on one side by the tegumentary parietes of the body, and on the other by those of the alimentary canal. It moves freely in this capacious chamber, and penetrates into all the dependent cells and channels of the organism. In zoophytes, actiniæ, and medusæ, this cavity openly communicates with that of the stomach, of which it forms the apparent prolongation. In the echinodermata and annelida it constitutes a perfectly-closed chamber, opening directly neither externally nor into the alimentary canal. A totally different rule applies to the blood-proper: contained in a closed system of vessels, it moves in a determinate circulatory orbit. The motions of the chylaqueous fluid are those of irregular oscillation, excited in part by ciliary, but chiefly by muscular action. The chylaqueous fluid presents gradations of compositions; in its simplest form it is a very dilute solution of albumen in sea-water. The "corpuscles" have scarcely yet appeared; there prevails always a direct proportion between the amount of albumen and the number of the corpuscles. It is only in the highest or most developed grades of the chylaqueous fluid that *fibrine* occurs, and *then only in very small comparative amount*. True blood differs from chylaqueous fluid in this important particular—that the former never occurs in the animal series without fibrine; the latter *almost* always. The blood-proper of every known animal is corpusculated but that of the annelida. The blood of annelids is almost invariably coloured; pigment therefore does not necessarily depend upon the agency of corpuscles. The morphotic elements of the chylaqueous fluid are, for the most part, distended with highly-refractive oil; in those of the blood-proper this principle *never* assumes a visible form. Albumen, corpuscles, and fat, are thus intimately associated in the simplest type, under which the nutritive fluids of the animal organism occurs. These definite and incomplex facts are prophetic of discovery. The chylaqueous fluid and the true blood of every animal, alike fresh-water and marine, afford an alkaline re-agency. The organized solids are always acid. An acid nutrient fluid is not known in the animal kingdom. Facts of wide-spread application are "*laws*." Here, then, are some of them. Sea-water is a rapid solvent of albumen. It is a circumstance of singular interest, that the vast multitudes of the lowest forms of animals are inhabitants of the sea; salt-water constitutes the bulk and basis of their nutritive fluids. How wondrous the adaptation between animate and inanimate nature!

The *fluids* have yet received no attention in those unicellular types of animal life—i. e., the gregarinæ, the amæba, the proteus, and the actinophrys sol, &c.—which stand below the zoophytes in the scale. The semi-fluid contents of these simple cell-structures must of course form at once food and blood. Under this type the porifera must be ranked. The animalized covering of the sponge consists of a congeries of cells, which are distended with a non-corpusculated albuminized salt water.

Polypifera.—Three types of structure prevail among zoophytes—the hydroidal, the asteroidal, and the helianthoidal.* The first includes the true zoophytes and the hydræ; the second, the alcyons; the third, the familiar actiniæ. In the zoophyte, the stomach opens directly by a sphincteric orifice into the fleshy axis of the polypidom; this is alike the case in the solitary and composite species. The transparent horny walls of the polypidom are separated from the fleshy axis by a very distinct interval, which is occupied by a hyaline areolar substance. The body of the polype, properly so called, consists of a stomach embraced by a tegumentary wall; these two cylinders are separated by an open space filled with a transparent fluid. The axes of the tentacles are the prolongations of this space; they are penetrated by the fluid contained in the latter; this fluid bears no visible floating globules. The fleshy axis of the polypidom is tubular in all hydroidal polypes; it is filled with a rapidly-moving corpusculated fluid. The motion of the corpuscles is most distinctly perceptible through the walls of the polypidom and the fleshy tube itself. The globules whirl in every direction—sometimes advancing, sometimes receding; now revolving in the same place, and now coursing spirally along the sides of the tube. This motion was studied by Lister; its existence has been confirmed by Sharpey and Van Beneden. The globules are moved by cilia: this fact is now unquestionable. Neither Lister, nor Sharpey, nor Van Beneden, could, however, succeed in demonstrating their presence. In the stems and branches of Laomedea geniculata they are convincingly conspicuous.† The floating-corpuscle so obviously present in the fluid, occupying the axes of the polypidoms everywhere, passes upwards into the space between the stomach and tegumentary parietes only when the polype fully distends itself; it is seldom seen in the axeal channels of the tentacula. The splanchnic cavity in some species appears to be divided from the polypidal tubes by a cribriform septum; it is then only the fluid parts which filter through; the corpuscles remain behind. This foreshadows the *first* attempt of nature to form true blood out of a chymous fluid. Here the corpuscles are no agents in the respiratory process; they do not penetrate the organs dedicated to this function. Neither the true splanchnic chamber, the interior nor the exterior of the tentacles, are ciliated in any hydroid anthozoa. The fluid in these processes differs in no sensible particular from that in the axes of the polypidoms but in the absence of corpuscles; they cannot, therefore, be distinguished as two distinct and independent fluids. There is a mechanical reason in some species against the admission of the globules into the canals of the tentacles—they are too large. It is probable that nature has imposed a certain limit of bodily dimensions on the cells of fluids, below which they cannot discharge

* History of British Zoophytes, by Dr. Johnson, 1842.

† I have examined the greatest number of the species abounding along the coast between Swansea and Tenby. In none have I failed to detect cilia in the fleshy axes of the polypidoms. In Tubularia, Clava, Hydractina, and one or two more species, the walls of the polypidom are too dense and obscure to render the observation of the cilia satisfactory. In others, their existence cannot be disputed.

the office for which they are designed. The illustrations of corpuscles accompanying the present communication were drawn as faithfully as possible, as they were seen in motion in the axes of the polypidoms. They constitute only varieties of one type. Figs. 1 to 8, Plate I, exhibit one general character: they are thick-walled vesicles, commonly spherical, sometimes compressed, bean-shaped, frequently nucleated, and now and then granular. They are in some cases intermingled with highly-refractive oleus molecules. These corpuscles bear the general character of inferior organization; they arise in an albuminous solution of salt water; they are invariably present; the conditions determining their production are therefore constant. It will not dissipate the mystery to affirm, with Ascherson, that they arise mechanically, as though by the contact of two homogeneous fluids (oil and albumen); or with Melsens, that the presence of certain salts precipitates the albumen; or with Gluge, that pressure and agitation will account for their origin. They present a definite typal character in all hydroid zoophytes. There is a speciality in the process of histomorphosis to which they owe their formation. Fig. 1 represents these bodies as they occur in the fleshy polypidom of Clava multicornis; fig. 2, Hydractina echinata; fig. 3, Sertularia polyzonias; fig. 4, Sertularia pinaster; fig. 5, Plumularia falcata; fig. 6, Plumularia catherina; fig. 7, Laomedea geniculata; fig. 8, Campanularia integra; all magnified about 400 diameters. These corpuscles may be noted as distinctive of the zoophytic type.

In the *hydræ*, it is easy to demonstrate the existence of a fluid charged with delicate pellucid globules, in the *cells* of the space between the stomach and the tegumentary walls. In the hydræ this space is not divided by parallel longitudinal septa as in the actineæ, but by intercrossing septa. At the roots of the tentacles the moving globules may be readily observed; they do not appear to traverse the axes of the tentacles. The perigastric space in the hydræ, as in the hydroid anthozoa, is destitute of ciliary epithelium. The corpuscles partake more of the character of oil-globules (figs. 9 & 10). In hydra viridis, they consist of a few granular spherules (fig. 9), intermixed with oily molecules. Those of hydra vulgaris discover the same character, abounding more in oil. In the *asteroid polypes*, the stomach of each polype is prolonged into canals in the polypidom. No corpuscles can be seen moving in the tentacles when they are being protruded by the limpid fluid of the splanchnic cavity. A thin section made by aid of Valentine's knife, parallel with the canals of the polypidom, and placed carefully under the microscope, will display the motion of cilia.

The corpuscles, as seen moving under ciliary action in the channels thus observed, are represented in fig. 11. They correspond with those of other zoophytes. They are little organized; they consist of spherical vesicles, mingled with oil-particles. Some few are nucleated, while others are charged with minute granules. It is difficult to conceive the nature of the office which morphic elements so simple are capable of discharging.

The tentacles of asteroidal polypes are said to be perforated at the extremities. This is scarcely possible. They are capable of expansion, through injection of fluid from the perigastric space into their axes.

The fluids in the *Actiniæ* admit of ready demonstration. Selecting the more transparent species, or young individuals, the following facts may be verified. While the little object lies on its side, the fluid contained in the chambers between the stomach and integuments may be seen every now and then escaping into the stomach, through an orifice situated at the bottom of this organ. The dissections of Dr. Cobbold* have recently confirmed the existence of this opening. The converse movement of the fluid may also be easily traced. The surrounding water enters the stomach, wherein it briefly sojourns, then passes through the opening at the bottom into the great cavity of the body; in this cavity it remains for a variable period; it now injects the tentacles. Corpuscles now arise in the fluid; it becomes thicker in consistence, through increase of its albumen; it is no longer pure, lifeless, salt water; it is a corpusculated, chylaqueous fluid; it is competent to subserve the ends of solid nutrition. Whence do the floating cells proceed? what produces them? Certainly no solid organ; neither liver nor spleen can in this case interpose its agency. Then, is it possible that there can inhere in albumen a mysterious histomorphotic power, in virtue of which it transmutes itself from the liquid into the solid condition? This were only a mode of enouncing "the theory of spontaneous generation."

Let *facts* accumulate. The *true* theory of the genesis of the floating corpuscles will in time arise.

In Actinia mesembryanthemum the corpuscles of the chylaqueous fluid are complex in comparison with those of zoophytes. They contain secondary cells and nuclei; they are interspersed with oil-globules and sperm-cells (fig. 12); they are not numerous in proportion to the bulk of the fluid. The cavity of the body and the interior of the tentacles, in all helianthoid zoophytes, are richly ciliated; in this particular they are distinguished from the asteroid and hydroid orders. The entire bulk of the fluid in these animals, when irritated, is emitted through the mouth. This faculty is peculiar to the Actiniæ. In zoophytes, the contents of the polypidom are not expelled externally on the retiring of the animal into its cell. The surrounding element is drawn again into the body with equal facility in the instance of the sea anemone. The marvel is, that fluid thus ingested and rejected so readily should prove adequate to the purposes of solid nutrition—that free cells should develop themselves in it with so much rapidity. The fluid contained in the splanchnic cavity of the Actiniæ (that is, if it have remained sufficiently long in that cavity) acquires in a very short time an impregnation of albumen; it becomes turbid on the addition of nitric acid.

* Annals and Mag. Nat. Hist., Feb. 1853.

The invertebrated animals generally are distinguished from the vertebrated in this respect,—that in the former the solids are more completely saturated with the fluids; the cells of the solids are larger, and more adapted to *retain* fluid than in the latter. This is more strikingly true of those classes, the Zoophytes, Medusæ, Echinodermata, and Annelida, in which the chylaqueous fluid constitutes more or less completely the liquid medium of nutrition. The inference is irresistable, that the fluids undergo a preparatory change in the interior of, or between, the cells of the solid structures; the fluids are *then* qualified for the work of histogenesis. This supposition explains the simplicity, the low, almost inorganic, type of their composition; it assigns a reason for the comparative absence of corpuscles from these fluids while yet within the great cavities of the body; it accounts for the non-development of a blood-vascular system in these animals; it renders intelligible what was before inexplicable—the mechanism of nutrition in these incomplex organisms. As nearly as it is possible to express in lines and points objects so delicate, fig. 12 shows the corpuscles of the chylaqueous fluid of Actinia mesembryanthemum; fig. 13, those of Actinia crassicornis; fig. 14, of Actinia bellis; fig. 15, of Lucernaria auricula: all magnified about 400 diameters. In morphic characters they fall within the zoophytic type.

The *Acalephæ* are constituted on the pattern of zoophytes. From them they differ in having no common splanchnic cavity. The stomach is prolonged into canals ramifying in the solid substance of the body; the canals receive their contents *directly*, through open orifices, from the stomach. Sea-water, with the organic matter, living or dead, which it may perchance hold in mixture or solution, is first drawn into the stomach; it sojourns there over the time required to subject it to the agency of the gastric secretion. It is then in great part admitted into the gastric canals; here it circulates to and fro, driven by vibratile cilia. Definitely organized corpuscles now evolve themselves; albumen increases in proportional amount, and the fluid becomes a nutritive compound. In these canals it is submitted to atmospheric agency; from them it passes by exosmosis into the cells of the solids. This fluid, in passing from the stomach into the canals, experiences the influences of no glandular organ: unless those cells constituting the walls of the containing canals. It signifies little whether the alimentary system be furnished with one or two openings; the character of the fluid contents remains the same. In the *pulmograde* orders it may be readily collected for examination: Rhizostoma Cuvieri is familiar along our coasts. In this species the corpuscles of the chylaqueous fluid are large and abundant (fig. 16); in their mature state they consist of compressed spheres; they bear two or three bright nuclei. The whole cell is filled with minute yellowish granules; other, simple, non-nuclear vesicles are interspersed. The parietes of the containing canals are internally villous; they furnish a digestive secretion, which promotes the chemical changes involved in sanguification.

The corpuscles of the chylaqueous fluid of the Medusæ depart strikingly from the zoophytic type; they are much larger; they are more laden with granular and adipose contents. They present a yellowish tint, indicating the dawn of a pigment-secreting property. They are furnished, in the mature state, with a dense involucrum; the "molecular base" is abundant. In the genera Aurelia, Pelagia, Chrysaora, Cassiopæa, and Cyanæa, the digestive canals are cæcal, as in Rhizostoma. The *ciliograde* acalephs present a modified arrangement. Here the digestive system is provided with an outlet as well as an inlet; the contents of the system coincide with those of the ciliograde orders. The little Velella limbosa is common in the bays of our seas; it exemplifies a cirrhigrade medusan; in it the entrance to the stomach is situated at the extremity of a sort of flask-shaped proboscis, the base of which opens into a cavity of somewhat cylindrical form, which lies in the direction of the length of the body, and subdivides at each end into two prolongations, from which a system of canals appears to pass off into other parts of the body. The corpuscles of the chylaqueous fluid in this beautiful medusan, like the animal, exhibit a slightly bluish tinge (fig. 17). In microscopic characters they do not materially differ from those of Rhizostoma. In Willsia stellata, a less common acaleph, the stomach is campanulate, and opens widely by four scarcely undulated lips. The surrounding ovaries impart to the colour a yellowish colour. From the stomach proceed six gastro-vascular canals, which subdivide as they descend to the margin of the subumbrella, and terminate in the tentacles. These canals are lined with a ciliary epithelium, and filled with a fluid thickly corpusculated. The floating cells are medusan in type (fig. 18); they consist of cells gorged with comparatively large secondary cells; they are tinted yellowish blue. Many are simple non-nuclear vesicles; the molecular base is abundant. In Turris neglecta, the floating cells of the fluid contained in the gastro-vascular canals are essentially similar to the former; they are, however, distinguished by the greater dimensions of the secondary cells; they dance amongst themselves, as though mutually repulsive. In Geryonia appendicula, the remaining example to be here cited, the cells of the chylaqueous fluid fall under the description already given; the involucrum is dense, the secondary cellules large and oleus, the vesicles and granules numerous (fig. 20.)

The *acalephæ* mark the upper boundary of that division of the nutritive fluids in which the latter communicate openly and directly with the external medium. The surrounding water, salt or fresh, enters immediately into the splanchnic cavity, *the* cavity always in which the chylaqueous fluid is lodged: this fact constitutes a fundamental article of distinction between the fluids of the lowest animals and those of the higher. In the acelephs, this splanchnic cavity assumes the shape of canals—the gastro-vascular. The chambers and channels in which the higher grades of the chylaqueous fluid and the blood proper are included, are everywhere and invariably closed;

neither the contents can escape, nor the circumambient element enter, in an immediate manner. From the arrangement, peculiar to, and distinctive of, the two lowest classes of invertebrata, the inference may be drawn that in *these* animals the whole *interæ* of the body may be penetrated by the external inorganic medium; no injury results from this penetration; contrarily, it forms the first condition of existence. But one striking additional fact should be stated as characteristic of this lowest division of chylaqueous fluid; *it contains no fibrine*; no coagulum forms in it; its corpuscles, which are chiefly impregnated with oleine, are the products of the histomorphosis of *the albumen*; they secrete in these degraded organisms no hæmatosine. This colouring and coloured compound is manufactured by the cells of the solids, not those of the fluids. The fact of the absence of fibrine from the fluid of the splanchnic cavity, which in these animals is the *only* nutritive fluid of the organism, there being present no trace whatever of a blood-vascular system, is corroborative of the theory, formerly stated, that the fluids acquire their final *histogenetic capacity* in the interior of the cells of the solids. It will be afterwards demonstrated that the semi-fluid contents of the floating corpuscles as they exist in the true blood of the higher mollusca and crustacea is a self-coagulating principle; if it be *globulin* in a colourless form, *then* globulin, like fibrine, is spontaneously coagulable. The free-cells of the fluids of zoophytes, acalephæ, are filled only with *colourless* principles; the involucra are also devoid of colour; the eye reads in their interior nothing but oleine. Ether extracts no adipose matter from the filtered intercellular fluid. The office of the floating corpuscles of the fluids in these inferior forms of life, may therefore be defined as that of converting the saccharine into the adipose principles—principles which, next to albumen, are most important in the requirements of solid organization. But let the question be now emphatically pressed—in a fluid thus constituted—of water, a few salts, albumen, corpuscles, and oleine—in what manner, and where, are the floating-cells generated? The fluid enters the stomach, sojourns briefly in contact with its *living* surface, proceeds into the interior of the peritoneal cavity, therein to oscillate, impelled by muscular and vibratile action; this is its history. In what manner, *but* through certain chemical relations into which the albumen enters, with the other principles psesent; where, *but* in the fluid itself, seeing that it receives the vital impress of no solid organ, can these bodies arise? Philosophic circumspection forbids at present the further flight of speculation. All that can with propriety be admitted in the glimmering light which immature science as yet affords, is, that under certain undefined conditions of development, of chemical combinations, and in presence of a living body, albumen *does* acquire the spontaneous power of passing from the fluid into the solid form. This limit bounds abruptly the light of chemistry. *Why* this "solid form," thus acquired, should, in different classes, orders, genera, and species, be differently configurated, is a question before which the genius of modern science lies powerless.

(*To be continued.*)

On the Pathology and Treatment of Uterine Catarrh and Internal Metritis.—By E. J. Tilt, M. D.

(Continued from page 156.)

In the preceding case was exemplified that form of metritis in which the internal surface of the womb remains free from all organic growth, but in other cases symptoms similar to those described seem to depend on the presence of various organic productions on the surface of the mucous membrane of the body of the womb, in the following case:—

Mrs. L——, an American lady, placed herself under my care in 1850. She was thirty years of age, anæmic, and much debilitated. The menstrual flow first came at fifteen years of age, and she was regular until pregnant. She married at twenty-five, had a child at twenty-seven, and soon recovered her strength. At twenty-eight she again conceived, and during the whole of that pregnancy suffered much from abdominal pain. The placenta was adherent, and removed with difficulty. It was long before she recovered her health, but it remained tolerable for a few months, when she was obliged to wean the child for want of milk. Menstruation then returned, and was unusually painful and abundant. When the flow ceased, the abdominal pains remained, and hysterical symptoms supervened; the menstrual flow returned several times at the regular epoch, but always more or less as a flooding, and the abdominal pains increased. The flooding next came on during the intermenstrual periods, and when that ceased there was a discharge like water, which sometimes had an offensive smell. Alum injections had been tried, steel and tonics given; but the patient's health completely failed, and a sea-voyage was recommended. During the sea-sickness the uterine discharge had almost ceased, and the patient rallied; but a few weeks after her arrival in England the old symptoms returned, and the patient, when I saw her, had been for some time confined to her bed or the sofa.

On examination, the neck of the womb was found larger than usual, but pressure gave no pain; the os uteri was patulous, but the mucous membrane lining the neck was pale, and the os uteri without any lesions. The body of the womb was double its usual size, and very painful on pressure. On introducing the curette, the os internum was found dilated, and the end of the curette evidently moved in an enlarged womb; its internal surface felt rough. I gently moved the instrument backwards and forwards, and brought away about half a tea-spoonful of what I could only compare to proud flesh, broken off from the surface of a wound. This was followed by considerable pain and flow of blood, but both abated during the next day, and there was evident improvement during the week. Ten days after, the operation was repeated, and I removed about a tea-spoonful of similar products. This operation was also followed by great pain

and loss of blood, but both symptoms soon abated, and the patient had no more sanguineous or serous discharges. The abdominal pains and tendency to hysteria lasted for a long time, but steel and tonics removed them at last. About three months after the last operation, menstruation returned, and on making an examination some time afterwards, I found that the os internum admitted the curette with difficulty, and the body of the womb had contracted to little more than its habitual size.

In this case the adherence of the placenta seems to have originated the disease, and the menstrual nisus gave it a first impulse. The flooding and the serous discharges were evidently caused by the morbid products on the internal surface of the womb; after their removal the patient rapidly recovered. This sudden improvement has been noticed in some of the cases published by Recamier in the *Union Medicals*, 1850. Recamier first drew attention to this form of disease; cases have been recorded by many French practitioners of note, and Professor Nelaton has met with these uterine vegitations in some women who died of cholera at the Hospitals of St. Antoine and St. Louis, of Paris. I have seen cases of this description in Recamier's practice, and three in my own during the last three years. Still this form of disease has not been noticed in the most recent works on uterine pathology, either as a form of internal metritis or a cause of menorrhagia, most likely because it has been confounded with other lesions under the name of menorrhagia. It deserves, however, to be taken into consideration on account of its being the cause of sero-sanguinolent discharges lasting for years, notwithstanding all treatment, and reducing the patient's strength to the lowest ebb, even if the result be not fatal.

In the last case the symptoms were caused by the production of flesh-like excrescences on the internal surface of the womb. They are fragile, and can be easily detached with the finger nail. Recamier has termed them *uterine vegetations*. Robin, of Paris a well-known microscopist, has examined them microscopically, and says, "they are formed of a small amount of cellular tissue, while the proportion of fibro-plastic tissue is even more abundant than it is in the uterine mucous membrane itself."

In other cases the uterine curette has removed from the womb round bodies varying from the size of hemp-seed to that of pea, which Robert (Des Affections du Col de l'Uterus— Paris, 1848) supposes to be the hypertrophied glands of the uterine mucous membrane. The products removed from some patients by Recamier had the appearance of bunches of small currants, leading to the inference that they were hydatid formations in the earliest stage of their development, and it is open to discussion whether such products can in any way be said to depend upon inflammation.

With respect to the symptoms by which these various abnormal productions may be recognized: they are likely to be met with in

women who, having borne children, continue to suffer from uterine symptoms, notwithstanding prolonged judicious treatment, although nothing amiss can be found in the neck and orifice of the womb, while its body is larger than usual, and painful on pressure, the more so if there have been frequent miscarriages not to be explained by the patient's antecedents. Internal metritis is also to be suspected in patients who have for years been subject to abundant sanguineous discharges, or of red-coloured serum, a species of discharge which the French call "eaux rousses."

With regard to the sanguineous discharge as a symptom of internal metritis, there is a concordance of testimony, some authors even regard it almost as characteristic of internal metritis as rust-coloured expectoration is of pneumonia. Here I must observe that this abundant sero-sanguinolent discharge cannot be confounded with the scanty, thick, brown discharge of the subacute inflammation of the mucous membrane of the neck of the womb. As for the menstrual flow, it is sometimes very abundant; but it is often absent, or at least is not to be distinguished from the habitual, sero-sanguinolent discharges. The diagnosis is confirmed by the freedom with which the uterine sound enters the body of the womb; and if the uterine curette is made use of, it will sometimes detect roughness on the internal surface of the womb, or at all events will bring away some of the morbid products I have described.

When the foregoing facts were lately brought forward at the Medical Society of London, Dr. Bennet implied that the uterine curette had only removed the products from the neck of the womb; but it seems to me that when the uterine sound or the uterine curette are used by intelligent practitioners, the diagnosis must acquire in their hand the greatest precision. If an instrument be passed to the depth of from two to three inches into the neck of the womb, where can it go except into the body of the womb, unless it makes a false passage. Recamier used to say that in the space of fifty years he had seen and operated on about 100 of these cases, and that three terminated fatally. A post-mortem examination showed that the instrument had penetrated into the womb, the fundus of which in two instances offered evidence of its having been softened before the operation in which it had been transfixed by the curette—a warning to use the instrument only when absolutely required, and then to use it with the greatest caution.

I shall reserve the treatment of internal metritis for a concluding paper.—*Lancet, December* 31.

(*To be continued.*)

On Medical Testimony and Evidence in Cases of Lunacy.—

By Thomas Mayo, M. D., F. R. S.

Lecture I.

Legal Division of the subject of Diseased Mind.—Lunacy, the Generic Term; Insanity, Idiocy, Unsoundness, being species, varied by the Act of 1853.—Insanity Considered in its Relation to Delirium; this having Two Forms, viz., Incoherency or Inconsecutiveness, and Delusion.—Two Forms of Delusion, viz., Objective and Notional.—Cases Illustrative of the Application of these Forms of Delirium as Tests of Insanity.—Delirium Tremens Legally Considered.—Doctrine and Practice of the Law in Reference to Lucid Intervals.—Dr. Rae's remarks on this Subject Considered.

I have formerly endeavoured to investigate the general subject of medical proof. In my present Lectures, I propose to offer some remarks on the noblest of its departments, the pathology of mind; and on that in its noblest phase, where it is brought into contact with great judicial questions. The circumstances of the time recommend the subject for consideration; for it is certain, that, while, on the one hand, the Medical Profession holds in its hands the learning and the experience of this subject, on the other, the members of it often find themselves in a very unenviable position, while informing Courts of Justice by their evidence. I believe, indeed, that I shall obtain the assent of experienced Practitioners, when I affirm, that in a large number of instances, it is difficult to certify that a patient requires coercion or surveillance, without incurring the risk, that he may be returned into the hands of his family, before the conditions of his recovery are completed, under a different opinion entertained by the officers whose duty it is, and who conscientiously perform that duty, to visit the receptacles of such patients.

Before I enter upon the topics from which, and the means by which, we are enabled to prove or disprove an abnormal state of mind, (I use this term as involving no hypothesis,) it appears expedient carefully to weigh the terms—drawn, indeed, from our vocabulary, but prescribed by the Legislature—expressing the abnormal states of mind for which the Medical Practitioner is empowered to place a given person under surveillance or coercion; the more so, as these abnormal states must be the same in kind, as he may have at another time to prove or to disprove as a witness, either in a civil or criminal point of view.

It has been most frequent, in this kind of inquiry, to lay down the doctrine of the subject, and to confirm it by decisions arrived at on certain facts. The practical nature of my purpose leads me to start rather from the latter point; to adopt the decisions of the Courts and the Legislature, whether conveyed as dicta, or embodied in positive rules; and to explain the rule by, or bring it in contact with, the doctrines prevalent on the subject among adepts or experienced persons.

The individual, in whose case the law sanctioned restraint or confinement under a medical certificate, (previously to certain changes in

terms, to which I will presently advert,) must be a "lunatic, or an insane person, or an idiot, or a person of unsound mind." And here let me premise, that the force which I must attach to these terms is conjectural, grounded on the supposition that they cannot be considered synonymous, and, consequently, must be the heads of a division, whether vague or complete, in which I assume the meaning which I assign to each term bears as near an approximation as can be made at present. The first of these expressions, then, I must presume to be generic, and to contain as species the other heads of the enumeration, though I admit that this interpretation seems to demand a different structure of the sentence. The selection of lunatic as a generic term is evident; for whether the patient be an insane person, *i. e.*, one whose intellect is perverted, or an idiot, *i. e.*, one whose intellect is abolished, or an unsound person, whom I shall presently describe, the writ has run *de lunatico inquirendo*, and the Commissioners who watch over his proper management are Commissioners in Lunacy. But, conceding this generic force to the term lunacy, and that the other terms indicate its species, I am entitled to suppose that insanity is as much intended to form a distinct species from unsoundness, as it, unequivocally does from idiocy. This distinction is, I may add, recommended by the subject matter, which is constantly claiming it or some equivalent distinction, as a means of judicial diagnosis in certain cases of incompetency, of which neither insanity, nor any synonyme of insanity, can be affirmed. Such was the hearing of a case which last year attracted painful attention,—the case of Mrs. Cummins. A host of witnesses were adduced to disprove the imputation of insanity; a host of witnesses stepped forward to prove that she was incompetent to manage her person and property. The first set of witnesses seemed to think that the case turned upon their evidence; the second set were justified, conformably with the distinction which affirms that a person may be unsound in mind without being insane, in demurring to this conclusion. The attention of the jury was called by the learned Commissioner to the law laid down by Lord Eldon, conformable, I may observe, with a distinction of this kind, and the plea of mental disease was accepted, in spite of the disproof of that particular form of it which is termed insanity. Now, as Mrs. Cummins certainly was not idiotic, this form must have been, or ought to be, according to the terms of the certificate, unsoundness. I shall have to consider this case more at length, when I shall have arrived at the subject of unsoundness, as one of the heads of my division. The case itself certainly involves grounds for a more than merely verbal distinction. At present I will venture to assume that insanity is predicated, or predicable, of certain states of perversion of mind in which delirium is present; that unsoundness is the expression by which certain other forms of perversion or of weakness may be distinguished, in which there is incapacity to manage person or property, in the absence of any distinct evidence of delirium, while, again, the term idiocy cannot be applied to them, which are, in short, exceptional cases to the two great heads of mental disease,—insanity and idiocy. I feel that

I shall not enlighten my hearers by offering any definition of idiocy. I shall, in another lecture, describe it in reference to the points in which medical witnesses have to consider it.

Whatever may be thought of the meaning which I have suggested for the above distinctions, it is necessary to include them here, as contained in all "medical certificates" up to the 26th of August, 1853, and thus as having operated on a large proportion of cases of abnormal mind at present under surveillance or restraint. Nor is it difficult to trace, in the nomenclature of the Act then passed, an intention to maintain similar distinctions. In the recent form of medical certificate, there is apparently no generic term expressive of abnormal mind in all its relations, but it is at once supposed that A. B., the subject of the certificate, is a lunatic or idiot, or person of unsound mind. I shall here, then, presume the word "lunatic" to be used as equivalent to "insane" in the former Act, and "idiot" and "unsound" to mean precisely what I have supposed them to mean under that former Act. The mode in which the principles and science of mental pathology have to be applied to judicial distinctions is indeed somewhat remarkable. It has pleased the Legislature to associate certain judicial powers with certain medical designations in a certain not very exact sense, so that they bind or loose those of whom we predicate them, or to whom we refer them in civil matters; or, again, are accepted on the same authority in courts of justice as expressing an exculpatory or mitigatory plea in criminal matters. Meanwhile, the question is reserved to themselves by the Court, whether we, as medical officers or witnesses, adhere to that sense of the above terms, which we have been understood by the law to use them, or with which recorded decisions of courts of justice, assisted by our evidence, has stamped them. Thus, when the medical witness indulges in peculiar and fanciful views, as when in the course of his evidence he expresses an opinion, that not only the person in question, but all mankind, are more or less mad, he is evidently giving a non-judicial force to the term, which is intended to specify a class, and his evidence must go for nothing.

There is another view of the position of the medical witness in relation to courts of justice, which deserves more attention than it always receives. He is summoned in such courts in order to enable the judge and jury to arrive at certain practical conclusions, by virtue of his applying certain terms to which, as we have observed, a given meaning has been annexed, or negativing their application to the person under trial or examination, according as the matter be civil or criminal. But, in the latter case, he must remember, that he is not deciding upon the penal consequences contingent on the opinion thus given, for although certain consequences of this kind may follow in the course of law if his assignment of opinion be accepted by the court, it is wisely considered, that a simple fact, and not its consequences, is the question proposed to him, since it will be presumed, that if the latter consideration be also entertained by him, it will be liable to bias his evidence on the fact which is his legitimate topic. In

this way, I understand the suggestion occasionally made by the court to the medical witness not to encroach upon his functions and those of the jury. It is obviously in criminal cases that the bias thus occasioned is most to be dreaded. Thus, the definition of insanity becomes very expansive, when its expansion may become protective to a criminal with whom we happen to sympathise. And if we permit ourselves to entertain the judicial question. Is A a responsible agent? instead of confining ourselves to the medical question, Is A insane? we are liable to find ourselves enlarging our description of the disease in favour of some one who possesses equally, as we think, with the insane, that element of character and external circumstances on which alone we argue that their impunity is or ought to be based. Thus, an elaborate argument may easily be constructed, proving that the offspring of the prostitute and the thief, devoted to infamy by the one, and educated to crime by the other, is equally deficient in freedom of will with the homicidal monomaniac; and when the medical witness, having permitted himself to stray into this question, has achieved this conclusion, he will easily discover eccentricity enough—for brutal vice is an eccentric state—to enable him to adopt for his client the term "morally insane." I shall presently have more to say on the subject of this term.

In respect to the error against which I have just addressed a caution, and generally in respect to our functions as medical witnesses in cases of mental disease, we have to bear in mind one heavy impediment, which the world opposes to our efficiency, and which we must ourselves obviate as well as we can. It is a part of the enlightened policy of the present age to throw widely open the subject of mental disease, and to give publicity to its details for the benefit and protection of the patient, as well as of society; and the Legislature expects a sufficient acquaintance with the subject in all the medical faculty, to enable all its members to fill up the certificate which attests the presence of such disease. Meanwhile, the public here interposes a more selfish policy to the prevention of our obtaining that amount of knowledge, which may fit us for this arduous duty, by making the acquisition of such knowledge a source of danger. He who is known to have given much attention to this branch of pathology, is liable to be excluded, on that account, from practice in every other, as if all diseases were not in some sense conterminous. The consideration is a grave one, and can be antagonised only by increasing liberality in the opinions of the public, and by a high sense of duty in the Profession, instructing us, as we cannot waive the performance of the duty, when called upon to certify or negative the presence of such disease, to fit ourselves for this function, by practice as well as by study.

Insanity or lunacy, idiocy, and unsoundness, are, then, the judicial terms for abnormal states of mind, which, in their purely medical relation, admit of cross divisions, and fall under other heads. But these being the expressions contained in the formula, by which the existence of abnormal states of mind is certified, I now proceed to inquire into the sense in which we may apply these terms so as to

facilitate the decisions, and to comply with the intentions of courts of justice, thereby also avoiding an evil, which often besets us in such places, that of mutual misunderstanding between the two professions.

INSANITY.

"All states of mind," says Mr. Stuart Mill "are caused either by states of body, or by other states of mind." Both these causes have to be considered by us, when it is a question of medical treatment in cases of mental disease. But when we are called upon not to propound the treatment of such cases, but merely to certify their reality, the physical phenomena on which they may depend are not fairly within the cognizance of the audience addressed, and our reasoning, as drawn from this quarter, will have little, or uncertain effect. Now, in looking for a term which may contain the essential mental elements of insanity, and, therefore, confer a criterion of its presence, I adopt delirium, as used by M. Pinel and Dr. Cullen. I do not affirm that all delirium is insane; there is a delirium in fever and in phrenitis, and again in simple irritation, which have specific differences, whereby we can distinguish them from that of insanity, though I do not think it advisable that this question should be entered into in a court of justice or in filling up a certificate. Estimating delirium thus, I propose to give some account of it, such as it is, when it justifies our giving that title of insanity to certain phenomena which would otherwise be called oddity or eccentricity, or perverted and inordinate tendency, or orgasm.

In the whole of this discussion it must be borne in mind, that a great unanimity may exist among experienced observers as to the presence of certain mental states, characterised by certain generally accepted names, which states, at the same time, it would be very difficult to describe in any form of words, insomuch that the undefined name, in the use of which experienced men are agreed respecting these states, will convey to all a more clear and distinct impression than any attempt at definition or even description. There is no term which lays claim to this admission more than delirium; and it may seem strange, that with the consciousness of this fact, I should venture to explain that term, instead of leaving it to the conceptions of my hearers. In doing this, I shall at all events endeavour to confine my hypothesis within the circle of commonly received opinions. Delirium is generally contemplated as involving two conditions in this sense, that one of them must be present in every delirious person, both being generally present. The first of these conditions is a negative one. It is the absence of that control over the rise and succession of thoughts which exists in the sane mind, and co-existent with this a state of ill-associated and incoherent thought. It must be admitted, that in the sane state, we cannot peremptorily command a thought to spring up in the mind, for this would imply that it has sprung up already; but we can, as Stewart observes, by an operation of the will, give such a direction to the associating process as may secure the presence of the

class of thoughts which we wish to have before us. Not only is this control over the rise and production of thought absent under the circumstances supposed, but also the power of the will over the succession of thoughts is impeded. In other words, the associating process acts independently of the will. To estimate this we must estimate the state which precedes actual delirium in persons in whom insanity is making gradual advances, when they have as yet only obtained the epithet eccentric. At this period, when the power of the will is still possessed, an attentive observer may perceive, and the unhappy patient sometimes feels, how heavily it is taxed and overweighted in its exertions to maintain a normal series of ideas. The principle on which that perturbation depends, which ends in the withdrawal of this influence of the will, is unknown to us. What approximation to such knowledge may ultimately be made through careful observation is uncertain. It may be helped by listening to the soliloquies of the insane; it may also result from attention being given to the (overheard) conversations and intercourse of the insane with each other. They seem to go along with and understand their own class wonderfully well. Once, indeed, when I was inspecting the Asylum of Mr. Newington, at Ticehurst, it occurred to me to obtain a clue to the abnormal associations of a gentleman there confined, by consulting another gentleman confined in the same house, as to his present state. The lunatic thus consulted by me, averred the fact, and enabled me to ascertain it, that his chum still laboured under morbid delusions, which was a question of great difficulty both to me and the visiting magistrates. With man in his normal state, the insane have little, or at least diminished sympathy, in the true sense of the term, *i. e.*, they do not place themselves in the position of the sane, or estimate the fitness of ideas in any reference to the extent to which such persons can go along with them in those ideas. Still they are sometimes able to recognise the fact, that, as concerns the rest of mankind, they are contemplated, and must consent to be treated, as a class apart. This idea was oddly developed by an incurable chronic patient at the above Asylum, who one day, on my visit of inspection, furtively slipped into my hands a paper, in which he had with no slight ingenuity described what he considered the state of the Asylum; the case being stated by him, ingeniously though incoherently, as if Mr. Newington and his family, attendants, etc., were really the unsound and incompetent inmates, and the lunatics confined were certain distressed ladies and gentlemen who had fallen into their hands, and were called insane.

It has often appeared to me that the incapacity for silence observable in those insane persons who are not melancholic, throws some light on the phenomena of their deportment. Let any one who wishes to estimate this incapacity in its relation to the incoherency and inconsecutiveness of insane delirium, watch the succession of ideas in his own mind, and then fancy himself compelled to give utterance to every one of them as it comes uppermost. He would find his resemblance to a man under the delirium of insanity greater perhaps than he would wish to think it. I apply this remark to insane delirium, and in doing

so I endeavour to draw some line between it and the inconsecutiveness of fever and simple inflammation of the brain and its membranes, to which he will find no such affinity in his normal state. The entire diagnosis between these forms of delirium, I do not pretend to lay down. Here the physical symptoms of the case must come into consideration, and be taken on the authority of the medical witness, whether as giving evidence or as signing a certificate.

In the above remarks I have endeavoured to portray that element of the delirious state which expresses itself by incoherency and inconsecutiveness. Of its relation to unsoundness, as distinguished from insanity, I shall have to speak in another part. In respect to idiocy, I may here observe, that the incoherency of that state is distinguished from the same property in the insane in various ways. The ideas of the idiot are few in number, besides being unconnected. Short sentences, or portions of sentences, are endlessly repeated by him. Under this mode of delirium, in insanity, an intelligent looker-on might observe, or conceive, that if some controlling power could be applied or restored, the patient might judge normally, while, in the corresponding state in idiocy, no such hope is suggested; the machine is spoiled, as well as the manager deposed. The inability to compare his ideas, imputed to the insane by Dr. Conolly, is mainly the result of this simple abstraction of power, of which the unhappy sufferer himself is sometimes observed to show a wavering and partial consciousness. United with the incoherent state, which I am describing, there will assuredly be motiveless and inconsequential conduct, and this, in many taciturn, reserved, and abstracted persons, not only is coincident with it, but also suggests the first suspicions of its existence.

The second phase of delirium consists in the presence of certain delusions, or false perceptions, of which there are two principal forms.

1. The delusion may simulate a perception of the special senses; it may, in this case, suggest, as absolutely and undoubtedly real, persons, forms, and sounds, which have no objective existence, and obtain implicit credit with the percipient, whether sight or hearing is appealed to in evidence of the hallucination, as this is often called. These I shall call objective delusions.

2. The delusion, or false perception, may have no direct reference to objects of sense, but may apparently turn on perceptions of the understanding alone thus embracing a large, and, I regret to say, indefinite category, which contains preposterous notions respecting power, station, conduct, moral motives, future prospects, etc. Thus the patient is in idea an Emperor, or perhaps a divinity; and, even while he is submitting to the rules and establishments of an asylum, he believes himself possessed of unbounded wealth and power; others, meanwhile, he thinks, are conspiring against him, and threatening his life. For the class of false perceptions here referred to I am compelled to appropriate a term which may designate their intellectual character, and will call them notional. They bear the same relation to the understanding which the delusions first described by me bear to the special senses; and it is to be observed, that, in many of these cases, the delusion shall

appear to engage the special senses when careful scrutiny will detect the fact, that the patient sees or hears truthfully, but puts a false construction upon what he sees and hears. Thus, in Mr. Percival's singular monograph of his own case, the imaginary personages are justly appreciated, in form and appearance, as servants of the asylum; that is to say, the divine or preternatural beings whom he esteems them to be in reality, have, in his opinion, assumed such forms. Now, out of these notional delusions, some declare their own abnormal character as immediately and plainly as delusions of the special senses or objective delusions, and the medical witness finds no difficulty in attributing them to delirium; but there are also some notional delusions eminently calculated to put his sagacity to the test, as not being separated by any well-marked line, from other delusions or mistakes, of which it would be impossible to predicate insane delirium, or insanity, or lunacy, according to the practical intentions to which these terms are subservient. Thus the fixed convictions of the unhappy artist, Dadd, that his father was his bitter enemy, which terminated in parricide, was previously separable by no definite line from the large category of unreasonable hatreds, the growths which fungate in depraved minds,—I say by no difinite line, for I conceive that there had been a strange oversight here in respect to certain indefinite suspicious symptoms, which might have forewarned his unfortunate father. But compare this case with Mr. Haslam's account of another lunatic, Matthews, and the singular creations to which his distempered fancy gave birth, and which he saw, on the retina of his mind, constantly employed in the tasks which his fancy had assigned them. The line which separates these imaginings from all but the imaginings of the insane is sharp and clear. Yet it may be truly affirmed that Dadd was not less delirious in his own sanguinary delusion than Matthews, but the former case did not similarly unfold itself.

I have thus, under the heads—first, of inconsecutive and incoherent thought; secondly, of certain delusions, endeavoured to trace the form and outward symptoms by which insanity is recognised in kind, though with infinite varieties of the degree in which each element is developed. But what is the pathology, and what has taken place, when this fearful change is worked? I have little to say in answer to this question. If analogies can throw light upon it, they must, perhaps, be sought for in the history of dreaming and intoxication. It has been said of dreaming, that it is constituted by a suspension of the will, and by the resulting confusion, through which conceptions of the imagination are mistaken for perceptions of the senses. Certainly, if one could give permanency to a state of simple intoxication by alcohol, and add to it these latter attributes, a state would result not very distinguishable from insanity. So much for the obscure light of analogy. In respect to the actual changes which may be worked in the human being under insanity, it must be remembered by those who engage in this arduous inquiry, that they must be contemplated as concerning our immaterial phase of being in a light much more exclusive of that afforded by physiological consideration than we are accustomed to assume. That there

should be a disease of the mind in the abstract, that such disease should work changes in us, viewed in this light, analogous to the physical changes of our bodily organs, is neither unnatural nor inconceivable. A parasitical growth—if, for want of a proper term, I may borrow this epithet from physical speculation—may take place under such disease, itself possessing vital functions and energies, but having no other relation to matter than the obvious one on which the tenure of our present life is based, namely, that we have an immaterial and a material being indissolubly bound together for the duration of that life, while, for anything we know, the immaterial element may be just as subject to its proper affections as the material one is. The above remarks may, at least, have a wholesome tendency to keep before us in our speculations the immense fund of mental disease that may exist inappreciable through any knowledge that we at present possess of phenomena so little capable of being made the subject of experiment, or even observation, as those which I am supposing.

In dealing with the two grounds which I have recently considered, for imputing insane delirium, namely, the presence of inconsecutiveness of thought, and that of certain delusions, how does the medical witness conduct his inquiry and arrange his evidence? He makes, or he ought to make, each of these elements throw light on the other. Where incoherency and inconsecutiveness exist, there is little difficulty. Continual inconsecutiveness, I believe, involves the presence of morbid delusions, *i. e.*, is sure to produce them; and is, therefore, the most important element in the proof of insane delirium. Sometimes, however, where natural talent and a cultivated understanding retain their influence on the insane mind, the diagnosis becomes very difficult. It may then be enabled so far to observe the normal order of thought, as to give what are called rational answers. It can associate the idea of personal inconvenience and unfitness with certain sequences of thought expressed in words, so as to avoid such expressions. Delusions are kept concealed by the patient, or may themselves be ill-marked examples of the notional kind. It here becomes difficult to obtain evidence that may justify a certificate of the insane state; and yet the refusal of a certificate may be full of danger to life, to property, and to domestic comfort.* Here the evidence of incoherent and unreasonable conduct, always present in the insane state, but not peculiar to it, must eke out the defects, though it must not supercede the application, of the intellectual criterion of insanity. But I need not say, how much the tact of an experienced medical inquirer will avail towards making out a latent delusion where none have been previously discovered, and where no evidence of delirium is attainable, so far as conversation is concerned, through the presence of incoherency. It was thus, in the early part of this century, that the ingenious Mr. Haslam evolved and luminously exposed an immense and systematic delusion in the mind of Mr. Matthews, a lunatic placed in Bedlam by the parish-

* This danger is materially obviated in the Act of 1853, admitting into the evidence of insanity, which is to be expressed in the certificate, "Facts indicating insanity communicated (to the certifier) by others." An admission of this kind was contained in the body of the former Act, but not in the schedule of the certificate.

officers of Camberwell, and presumed by Dr. Birkbeck, and also by his own relations, to be unjustly detained there. It would appear that, in repeated conversations, these persons could obtain from him no evidence of incoherency or delusion; whether his freedom from the first state—for he was at all times coherent in conversation—blinded Dr. Birkbeck to the possible existence of delusions, or that eminent physician failed to obtain a clue to those of Matthews, extensive and complicated as they actually were. Now, the non-detention of Matthews, on the ground that he was recovered, was likely to have involved serious mischief, for he appears to have been, in fact, a very dangerous lunatic; yet the affirmation of his persistent insanity by Drs. Powell, Toort, Simmons, Ainslie, and Pepys might have failed to satisfy the convictions of a jury in the absence of specific proof of delusion, such as was obtained by Mr. Haslam.

The pen of the insane sometimes brings to light their incoherency and inconsecutiveness, which have been far less apparent in their conversation. I know, indeed, no better study of the peculiar articulations by which the insane mind fastens together the dijecta membra of thought than the monograph of Mr. Spencer Percival has afforded me.

Among the recent cases of questionable insanity, none have attracted more attention than that of Colonel Dyce Sombre. Those who in the year 1848 maintained the persistence of his insane state, (his general management of his own affairs being confessedly sane and consistent, his conversation coherent and consecutive), had to depend for their proof upon the supposed presence of some delusion or delusions. Of hallucinations, that is, sensible false perceptions (my first head) they had no proof; at least, the small attempt at proof utterly broke down. But there was one persistent error of thought, which *might* constitute a notional delusion, such as I have described as indicating insanity; and the question was, what did it amount to? Was it a delusion only in that popular sense ofthe term, inwhich every one who is mistaken may be said to be deluded, or was it an insane delusion? I am not introducing this case with a view to its discussion as a whole, but merely as in this point illustrating a great difficulty, which overhangs the subject of diagnosis in mental disease. With *objective* false perceptions there is comparatively small difficulty, provided they are believed in as real by the percipient; there is far greater difficulty with the mere subjective notional delusions; and I fear I must not aspire to rescue this part of my subject from the domain of empirical tact, or place it on a scientific basis. The question on which the case of Dyce Sombre turned in the inquiry ordered by the Lord Chancellor in 1848, was, whether a certain notional delusion which had sprung up in his mind, while he was confessedly insane, and which still maintained its hold, was a proof of persistent insanity. Now this question was divisible in two parts, both highly deserving our attention. 1st. Whether the delusion was essentially an insane one; in which case its persistence without any other evidence of insanity would be conclusive against the sanity of the patient. 2nd. Whether, having confessedly sprung up during the insanity of Dyce Sombre, it must be regarded, though not intrinsically,

an insane delusion, still implying, so long as it should last, a taint of insanity caught as it were from the morbid state in the course of which it commenced. Those who maintained the sanity of Dyce Sombre answered both these questions in the negative. The first was easily disposed of: the delusion in question was a mistake equally conformable with the natural character of the man and the habits in which he was brought up. To the second question an affirmative answer would involve the supposition, that once mad, a man is always mad, or certainly can never with confidence be pronounced sane. But madness does not pervert all those associating processes by which opinions are formed, neither should it be presumed to remove on its disappearance all those trains of thought which have been set up in the mind during its presence, or the opinions resulting from them. What is *implied* by cure, is mainly, that the power of self-control has been regained; for on this latter point it must be admitted, that although the evidence of the invasion of insanity is not complete until its intellectual symptom, delirium, has occurred, still no recognised intellectual improvement can be taken as conclusive evidence of a cure until moral self-control is restored. The first of these provisions is claimed by the special interests of the patient, and in order that his liberty may not be invaded on inadequate grounds; the latter is requisite for the defence of society. Meanwhile, with respect to moral self-control, it is justly assumable, that this has not been regained if *certain* delusions had not been abolished, but it had never been proved that the one persistent delusion of Dyce Sombre belonged to that class.

In a case to which I was called in by Dr. Monro, a few years ago, it was our painful duty to resist the liberation of a patient, an old lady, whose confinement, under certificates, had continued for sixteen years. For six years she was described as having been in a state, first, of acute, then of chronic mania. For many years we learned that she had regained the power of conversing consecutively and sensibly, indeed, without the smallest evidence of incoherent or irrational remark, and such appeared to us to be her present state. The objections which existed to her being then considered sane, if she had been insane up to the time we saw her, on the ground of her advanced age, weighed on our minds, but seemed insufficient. The evidence of her attendants, who considered her still insane, on the ground of occasional outbreaks of temper, was that of interested witnesses. She was a patient in chancery, and the visiting physicians had become favourably disposed to her enlargement, as a sound-minded person. Now, the question was in this instance determined in our minds by a discovery which we made of a very remarkable notional delusion, which held its ground in her mind. In a set of drawers in this lady's bed-room, and in certain trunks there, to which we were conducted without her knowledge, we witnessed a large, very heterogeneous, and dirty collection, (dirtiness had been a symptom of her insane state,) consisting of old bottles, broken cups and saucers, brass nobs, bits of old string, shreds of linen and cloth, small bundles of wood, such as light fires, pieces having been apparently picked up and tied together; a cup, containing dirty food of

the most disgusting appearance, which had evidently been long there; bits of valueless stone, coals, nails, etc. This accumulation, which could not have been extemporised by the attendants to make out a case, and of which, accordingly, the patient must have been long aware, would have occasioned strong doubts as to her sanity, even if no prior grounds of suspicion had existed; but, carefully preserved by one who, up to a recent date, had been so far suspected of insanity that she had not been set free by the visiting commissioners, who was in her 71st year, and therefore the less likely to have obtained a cur., it became, in the opinion of Dr. Monro and myself, a conclusive ground for resisting this lady's immediate enlargement.

We have in the above case a notional delusion, apparently of sufficient weight to decide a question as to the presence of lunacy. It may be usefully compared with a process of thought occurring in another mind, which many will consider as equally constituting a notional delusion, but to which no one, either in the age in which it occurred, or in the present day, would attach equal or similar force, as affording proof of such disease. I allude to the case of Emanuel Swedenburg, but with no intention of enlarging upon it here. It is, however, suggestive, and brings before us an important incident in the estimate of notional delusions, namely, that they have not the same force in making out a case of insanity as delusions of the special senses. A notional delusion generally demands auxiliary proof from the context of the patient's character and circumstances. This was furnished in the case of the old lady, by her known previous insanity, and the improbability, arising from her age, that it was cured. But it was not furnished in that of Swedenborg by any other element in his intellectual or moral condition. Neither does this latter case stand alone as illustrating the importance of a just estimate of this element of the judicial question under suspected lunacy. The aberration, the notional delusion, of Swedenborg, if it was one, is the same as, or but little removed from, the settled conviction of a body in the United States, amounting to thousands; many of these persons highly educated, some of them highly gifted, and in public offices of great trust, certainly far removed from any definite suspicions of lunacy. In the domain of mind, indeed, as well as of matter, the discovery of one age may have been the imputed miracle or hallucination of a former age.

In the case of M'Naghten, tried 1844, for the murder of Mr. Drummond, we have an instance of notional delusions permitted to constitute evidence of insanity without any discovered incoherency of language or of thought, although the wayward character of his past life might make it probable that such incoherency and inconsecutiveness may have existed. The notional delusions were, however, such as experience proves to be frequent in the insane. Formerly, when resident at Glasgow, he had frequently affirmed suspicions of the existence of a conspiracy against him; these, it was alleged, he had repeated at Boulogne, where, on landing, he fancied he saw spies lurking in a watch-box. Faces, he said, were made at him in the streets, fists shaken at him, and stones thrown. He had pressed the Sheriff of Glasgow for protec-

tion from his fancied enemies. Here was strong presumptive evidence of notional delusions, which the medical witnesses affirmed, and which the Court accepted on their affirmation, as adequate to substantiate a plea of delirium. Subsequently, this opinion has obtained confirmation from the authorities of Bedlam, where Macnaghten has repeatedly exhibited well-marked maniacal paroxysms. Thus far I am justifying the evidence of the medical witnesses in this important trial; not, however, its results in relation to the sentence of the Court, the consideration of which would be at present out of place, though it has, in fact, a very important bearing on the whole subject, as I shall point out at another time. Contrast the above case with that of Bellingham, the murderer of Mr. Percival, in respect to whom the plea of insanity was overruled. Neither of these murderers exhibited incoherency of expression or thought. Bellingham's avowal, that ill-usage led him to the performance of his crime, supplies the act with a motive belonging to the ordinary laws of the human mind, and delusive (if unfounded) only in that sense in which every mistake might be so called. The immediate occasion of the murder was indeed a very natural one to a moody and malignant mind, such as Bellingham seems to have been. He had been roughly repelled in one of his intrusive applications at a Government office a short time before the deed; and it was not unlikely that he should select Mr. Percival for his victim, for he had made to him a personal application, and been refused. There was, in truth, no point in his case tending to fix upon him the plea of insanity, unless his "strong expectation of being acquitted," according to the report of the case, can be interpreted into a morbid notional delusion. It is but just to observe, in favour of those who objected at the time to the verdict in Bellingham's case, that but little time was given for the collation of evidence in proof of his being a lunatic.

The subject of delirium has to be estimated in relation to a form of it, which in its acute form certainly may be accepted as a proof of insanity; while, in its chronic form, wherein delusions and incoherency of thought are less patent, it will still fall within the intention of the certificate, as disqualifying the patient for self-control, under the head of unsoundness. This is delirium tremens. The symptoms of it are well known to the audience whom I am addressing, whom I merely wish to remind that they may be called upon to affirm or negative them, where the most important interests of society may be perilled if a wrong conclusion be arrived at by judge and jury. This caution is indeed the more required, that the plea of delirium tremens may easily be brought to bear upon cases in which the thing itself has no existence, or does not exist in its practical development; *e g*, where a person, predisposed, perhaps to the state, is truly drunk, not delirious. Such was, apparently, the well-known case of Captain Johnson. This officer put to death, or severely wounded with a sword, successively and on different days, several of his sailors. He had previously, on shore, drunk largely, and was probably during the time under the influence of alcoholic liquors. The plea, on which alone he could escape a verdict of murder, was the disorder in question, as being the only recognised mode in which drunk-

enness is construed into lunacy. The proof that this disorder had existed was nowhere to be found in the appearance of the criminal on trial, or in the depositions of those who witnessed these tragical acts. It was assumed by the counsel for the criminal, and good-naturedly but unscrupulously conceded by the Attorney-General and the Court. Under this co-operating influence, it cannot be wondered that the jury surrendered their judgment, and found a verdict of lunacy. Shortly after his escape, I saw Captain Johnson in the criminal department of Bedlam. His manners seemed quiet and reserved; his countenance hard and morose, but no part of the expression of it indicated predisposition to mental disease, the absence of which was strongly affirmed by the medical authorities at Bedlam.

The medical witness is often called upon to advise the Court, whether the case be civil or criminal, in ascertaining the reality or non-reality of what is called a lucid interval. The term is judicial; and the meaning which it is intended to bear, according to the *Jurist*, in the report of Lord Brougham's judgment, in the case Waring *v.* Waring, such, that "to constitute a lucid interval, the party must freely and voluntarily, and without design of pretending sanity, confess his delusion." It is, of course, also presumed, that he is coherent at the time. Here the medical witness must bear in mind that he is not called upon, in complying with this definition, to declare that the lucid patient is so recovered that he would give that patient a discharge from surveillance, or certify his return to sanity. * Thus in the case of Cartwright *v.* Cartwright, we find the Court deciding in favour of a will made by a person confessedly or obviously insane, but presumed at the time of making it to be under a lucid interval. "It was proved in general that the habit of the person (a single woman), and her condition of body, and her manner for several months before the date of the will in question, was that of a person afflicted with many of the worst symptoms of insanity, and continued so certainly after the will was made." It appears from evidence, that, for some time previously to the date of the will, she was very importunate for the use of pen, ink, and paper, which were at first withheld from her by the direction of her physician, Dr. Battie. Her importunity continuing, he at length consented, in order to quiet and pacify her, that she might have them, observing, that it did not signify what she should write, as she was not fit to make a proper use of pen, ink, and paper. These being carried to her, her hands, which had been previously tied, were unloosed,† and she sat down to a bureau to write. Her attendants, who were watching her outside the door saw her write upon several pieces of paper in succession, which she tore up and threw into the grate, walking up and down the room in a wild and furious way, and muttering to herself. After one or two hours spent in this way, she finally succeeded in writing a *will*, which suited her, though it occupied but a few lines. It was decided by the Court, (Sir William Wynne,) that she had a lucid interval while making the will,

* See Prichard, "On the Different Forms of Insanity," p. 196.

† It is probable that the ligatures, thus loosened, need never have been imposed, considering the results of their removal.

the validity of which was consequently established. The grounds of this decision were, that "the will made a natural and consistent distribution of her property; in short, that it was a rational act, rationally done." Hence it was to be inferred, that her mind was visited by a lucid interval at the moment of making it: "For," says the Court, "I think the strongest proof which can arise as to a lucid interval, is that which arises from the act itself; that I look upon as a thing to be first examined, and, if it can be proved and made good that it is a rational act rationally done, the whole case is proved." Meanwhile, the civil powers conceded in this act to the lunatic convey no imputation on those who, either at the time or afterwards, were keeping her in durance.

On the other hand, in the case of Waring *v.* Waring, we find Lord Brougham *setting aside* a will made where the insanity was far less proved, but dissimilarly situated to the above in this respect also, that no temporary lucidity presented itself,—certainly no lucid interval is suggested by the act itself, as in the Cartwright case. The will was made in favour of a person unknown to the maker, and it sets aside a brother, towards whom she has taken up a delusion that he is a Roman Catholic.

Such are the civil cases regarding the subject of lucid interval, which the Court has decided mainly upon principles applied by medical witnesses. As these questions concern the civil powers which may be conceded to persons under lucid intervals, so there is another kind of question which equally calls for our discretion in the giving of opinions —the more so, because here there are strong inducements to us to contemplate the case as advocates as well as witnesses,—namely, what extent of criminal responsibility the insane may acquire. Some amount of this may presumably be demanded during a lucid interval, when it is considered, that much of our own improved treatment of the insane, in the present day, turns upon the power of self-control which they can be induced to exhibit, under the influence of certain motives, even when no lucid interval is supposed to exist,—an admission which we must make, in spite of the more general fact, that a deficiency of influence from motives is observable in the insane state. The answers of the Judges applied to after the acquittal of Mr. M'Naghten for the murder of Mr. Drummond by the House of Lords, on the state of the law relative to crimes committed by persons supposed to be insane, or afflicted with monomania, certainly comprehend and apply, *á fortiori* to persons under lucid intervals, and they affirm the responsibility of all persons who have the capacity for recognising the meaning of the law, and of knowing that they are acting contrary to it. These answers of the Judges I shall again refer to in another place, when I am discussing the conditions under which they may be applied to persons of diseased mind. But I must here advert to the very contrary views expressed by Dr. Rae, in a work* of great value on the subject now before me, "It has been admitted," says Dr. Rae, "that, with certain reservations, the civil responsibilities of the insane are unimpaired during the lucid

* "On the Medical Jurisprudence of Insanity,"

intervals, because the mind is sufficiently restored to enable the individual to act with tolerable discretion in his civil relations. In respect to crimes, however, the matter is altogether different for reasons that will be not without their force. These reasons are, that the crimes which have been alleged to be committed in a lucid interval, are generally the result of the momentary excitement produced by sudden provocations. But these provocations put an end to the temporary cure by immediately reproducing that pathological condition of the brain called irritation, and that this irritation is the essential cause of mental derangement, which absolves from all the legal consequences of crime." "The conclusion is, therefore," proceeds Dr. Rae, "that we ought never, perhaps, to convict for a crime committed during the lucid interval, because there is every probability that the individual was under the influence of that cerebral irritation which makes a man insane." That this law (!) is not conformable with the dicta of the Judges above alluded to, will not be disputed, if my interpretation of those dicta is accepted; that it is not more conformable with the interests of society will also, I think, be admitted. Consider the parity of reasoning to which it leads. It has been recorded by Dr. Esquirol, that out of 2814 recoveries of the insane, 292 have recurrences of the disease. These persons, then, had obtained temporary cures, and I know not how Dr. Rae could refuse to any criminal outbreak of which they may hereafter be guilty, the same immunities from punishment, and on the same grounds which he confers upon persons presumed to labour under the temporary recovery afforded by a lucid interval. Accordingly, all these persons will, according to Dr. Rae's admission, in regard to the latter case, be permitted to act in the most important civil relations, as if sane, and yet be privileged to commit criminal acts without any liability to the punishments of crime.

It must be confessed, that the conditional responsibility which the law, and as I think the reason of the case, attributes to the insane, is not easily applicable in practice, either under lucid intervals, or under such other phases of the insane state as might seem to justify it. The law, as I shall have again more fully to point out, will remain a dead-letter, or will be continually ignored by the sympathies of judges, juries, and, I may add, of medical witnesses, unless some practical distinction can be arranged which may enable the responsible insane to undergo some lower degree of punishment than that inflicted on similar delinquents being of sound mind. The position of many such persons under capital charges is at present anomalous. They are acquitted, in defiance of the law as laid down by the judges respecting M'Naghten's case, because the punishment at present appertaining to their offence would be too severe; and then, instead of being consigned to confinement in a gaol, as a secondary punishment, they are consigned to it in an asylum, as a place simply of detention. This becomes a scene of severe virtual punishment to some of them, of gratification to vanity and idleness to others; those, meanwhile, to whom it is a grievance, as they do not regard it in the light of a punishment, derive from it none of the preven-

tive effects of punishment on future conduct, while the public, for the same reason, find it equally unproductive of good as an example to persons of actually diseased mind, or to that large class of other persons who are drifting into disease under uncontrolled eccentricity. To this point I shall return when I am considering unsoundness of mind. —*Medical Times, December* 3 *and* 10.

(*To be continued.*)

Recovery after taking a large Dose of Hydrocyanic Acid.—By W. M. Burman, Esq., M. R. C. S. E., Wath-upon-Dearne.

The occurrence I am about to relate took place on August 6th, 1853, at six P. M.; but before going into detail, I must premise that my father and myself are practising together and use the same surgery. We keep our Scheele's hydrocyanic acid for dispensing much diluted,—namely, in the proportion of one minim of the acid to a fluid drachm of water; this is kept in a four-ounce purple glass bottle. It so happened that a short time previously we had received a fresh supply of Scheele's acid in a bottle precisely similar to the one in which we keep our *very dilute* acid. This strong acid was put into a cupboard under lock and key, but on the day in question had been taken out to replenish the dispensing bottle, and then left on the surgery counter. Soon afterwards my father returned from his afternoon ride, and being troubled with slight dyspepsia, went into the surgery, as was his habit, and mixed himself a draught containing a little aromatic spirit of ammonia and bicarbonate of soda in two ounces of water, adding to it a fluid drachm of the *very* dilute acid, as he thought, but he took it out of the bottle of Scheele's acid standing on the counter. He drank this off, noticing nothing peculiar in the taste. In a few seconds afterwards, upon looking at the bottle, he thought the label appeared cleaner than usual, and the idea flashed on his mind that perhaps he had taken the strong acid. A glance at the proper dispensing bottle, which was in its place, confirmed this. He directly poured half an ounce of aromatic spirit of ammonia into the measure, and drank it, *he believes* without water, but he may have added some. He then walked into the house to the bottom of the stairs, (a distance of about sixteen yards), and called me; I came down stairs directly, and went into the surgery, where I found him standing at the counter with a glass measure in his hand. He said, "I have taken a drachm of that acid; what can be done?" adding, "I have since taken half an ounce of aromatic spirit of ammonia." There was nothing in his appearance to attract my attention, but he spoke hurriedly, expiring deeply at the same time; he then sat down on a chair. I immediately put some crystals of sulphate of iron into a measure, adding one drachm of the tincture of the sesquichloride of iron, and one ounce of water, stirring the mixture vigorously, to get as many

of the crystals dissolved as possible in the time, and gave it to him to drink, which he did. I had no liquor potassium at hand, or I should have added some to the mixture before giving it to him, to precipitate the mixed oxides of iron ; as it was, I was obliged to trust to the ammonia he had taken. My object in giving him this was to endeavour to get the mixed oxides of iron in contact with at least part of the acid in the stomach, and thus to convert it into Prussian-blue, as suggested by Messrs. Smith, of Edinburgh. Directly after drinking this, he began to breathe deeply, passed his hand over his forehead and top of his head, and said, " Oh, I feel very queer; had I not better go out of doors ?" I said, " Yes," and with my assistance he staggered out, and dropped senseless in a sitting posture on a stone step at the surgery door. This was just about *two minutes* after taking the poison, as ascertained afterwards by going through the same routine. From this time he recollects nothing till twenty minutes afterwards. His breathing was now slow and very deep; his eyes turned up completely under the upper lid ; pulse moderate in volume, but very slow and intermitting. I hastily took off his neckerchief, fetched a large pitcher of water, and poured it over the back of his head and down his back. This produced no apparent effect at the instant, but a few seconds after he vomited a mouthful of glairy mucus. (This was nearly four minutes from the time of taking the poison.) I sent for another pitcher of water, and during the interval again examined the pulse, and found it slower than before, feeble, and threatening to stop altogether ; respiration very slow and deep, irregular, with blowing expiration and puffing of the checks ; a little frothy mucus ran from his mouth. At this period the relaxation of the whole body was as great as that of a person recently dead. I now gave him another dose of the iron mixture as before, adding a little aromatic spirit of ammonia. By speaking loudly, shaking him, and pouring it into his mouth, I got him to swallow the whole of it. Meantime the servant returned with another pitcher of water, (about four pints,) which I instantly poured down his back,(five minutes after taking the poison.) This appeared to rouse him a little, and directly afterwards he vomited about two ounces of a deep bluish-green liquid ; this I was glad to see,for I hoped that partial decomposition of the acid had taken place. The pulse and respiration were slightly quicker and more regular; pupils still quite invisible ; conjunctiva injected ; face livid. After an inspiration more than usually deep, he opened his mouth wide, and stretched out his arms; a spasmodic flutter passed over the face, and then over all the body, and I expected fully to hear a scream, as I had generally noticed in animals, or that he was about to have a convulsion : but just as it began to pass off, he vomited twice, and seemed relieved by it. The vomited matter was still bluish-green, and this time mixed with pieces of half-digested meat, which had been taken at dinner, four hours previously. I next gave him two drachms of aromatic spirit of ammonia in ounce of water, and with some difficulty got him to swallow it. Having again filled the pitcher, I poured the water down his back as before, and directly afterwards he vomited two or three times, (seven minutes from the time of taking poison.) The respiration

and pulse were now very much better, the latter being quicker and pretty regular. Soon after the vomiting, I noticed a little movement of the hands, apparently voluntary. I now hoped the immediate danger was passed, (eight minutes,) so I watched the symptoms for a minute or two, and then the pulse beginning to falter a little, I gave him two drachms of aromatic spirit of ammonia in one ounce of water, which, with a little difficulty, he swallowed. I tried to get him to speak, or to give any evidence that he understood what was said to him, but failed to elicit any sign of consciousness from him; still I considered him tolerably safe, for the pulse was pretty strong and regular, and the respiration, although deep, was quite regular; the countenance was also now regaining its natural appearance, and that extreme flaccidity of the limbs was nearly gone. After about five minutes more had elapsed, (fifteen minutes,) he opened his eyes, and gave utterance to an ejaculation, and evidently understood, to some extent, what was said to him. Soon afterwards he complained of his trousers being wet, and this is the first circumstance that he remembers after leaving the surgery more than twenty minutes before. We presently got him into the house, and gave him a little hot brandy-and-water. I was now anxious to get him to bed as quickly as possible, judging that rest in the recumbent position would most conduce to his recovery. After sitting ten or fifteen minutes, he was able with great difficulty and with our assistance to walk up-stairs, but vomited several times during the transit. We got him into bed, and soon afterwards, turning to me, he said, "You should have used the cold affusion," and seemed quite surprised when I told him that I had done so pretty freely. During the evening, he took a simple effervescent draught now and then, and presently he dropped asleep. He passed a good night, and next morning complained of pain across the loins, but was otherwise pretty well, except a feeling of general weakness. I ought to have mentioned that my father is about sixty years of age, and of a strong constitution.

A day or two afterwards I analyzed the acid. I measured one drachm in the same two-ounce measure that my father used, and put it into a minim measure; it filled up to seventy minims. I diluted this and then added a solution of nitrate of silver till no more precipitate was produced. I repeatedly washed this precipitate, and dried it carefully for a long time; but to make sure that it contained no more water, I put it into a warm oven for an hour, during which time it lost nearly one-fifth of a grain. It now weighed exactly twelve grains, which would be equal to 2·4 grains of anhydrous' hydrocyanic acid, *the quantity my father took*. As 100 grains of the acid filled up to 105 minims in the same small measure, this would give 3·3 as the per-centage of the anhydrous acid in the Scheele's acid used.

I have been thus minute, perhaps unnecessarily so, in the detail of this case because it presents many points of unusual interests; some of these it may be well to recapitulate very briefly:—

1stly. This is the largest quantity recorded (so far as I know) after taking which recovery has ensued.

2ndly. The quantity of acid taken was *measuread*, being certainly no less than one drachm of Scheele's strength (at 3·3 per cent.), and being equal to 2·4 grains of real acid.

3rdly. The time at which insensibility supervened after taking the poison is accurately known, namely, *two minutes*.

Lastly. The good effects of the cold affusion, and the probable decomposition of part of the poison by the mixed oxides of iron.—*Lancet, Jany.* 14, 1854.

Notes of Dr. Smith's Lectures at the Medical College.

By Senior Medical Apprentice JAMES A. F. HADDEN.

REPRODUCTION.

The function of reproduction or generation, is a function which does not effect the individual himself, but which has for its object the continuance of the individual species.

This function is present in both the animal and vegetable worlds, and is therefore a "vegetative" function.

The modes of reproduction are different in the various classes of the animal creation. The two great divisions are non-sexual and sexual.

A. *Non-sexual* reproduction is found in animals of the lower scale. Is divided into three classes.

1. Fissiparous—or generation by division; example, Naias Proboscidea.

2. Gemmiparous—generation by means of buds or gemmules; example.—Hydra.

3. Sporular—by means of sporules; examples, Medusa, Sponges.

B. *Sexual* reproduction is observed in animals high in the scale of organization. Divisible into two great classes. I. Unisexual and II. Bisexual.

I. *Unisexual.*—In which the organs common to both sexes are on the same individual—examples.—Holothuria, Snail.

II. *Bisexual.*—In which the sexes are in different individuals—examples.—Man—Mammalia, &c. The Bisexual class has four subdivisions.

a. Oviparous—Birds, Fishes, Insects.
b. Viviparous—Man and Mammalia.
c. Ovoviviparous—Reptiles and some Insects.
d. Marsupiate—Woombat, Kangaroo.

These then are the chief divisions in the forms of reproduction.

Another form of generation is sometimes added, called *spontaneous* or *equivocal* generation. These terms were used to explain the appearance of animals where ova could not be shewn to have first existed.

The Physiologists who used these terms imagined, that an accumulation of organic particles, may produce animals spontaneously. It was termed 'Equivocal' from the uncertainty with which they are produced. We do not in our days believe in Spontaneous or Equivocal generation, and we adopt the language as laid down by Harvey—"omne vivum ex ovo."

Generation in the Human Being.

The organs of generation in the Human Being are divided into

	Male.	*Female.*
1st.—Germ preparing organs	Testes	Ovaria.
2nd.—The conducting Vasa	Deferentia.	Fallopian Tubes.
3rd.—The excreting	Urethra	Vagina.

Before the seminal organs are qualified for performing their various offices, a certain condition of the body is required, and this state is called Puberty. This puberty is indicated in the

Male—by secretion of semen, by deepening of voice, growth of hair in different parts, and by sexual desire.

Female—by a discharge which takes place monthly, and by other changes marking the development of the body.

Of which parent is *the new being* essentially a product?

Three opinions have been held.

1st.—That it is essentially a product of the female. The Physiologists who supported this opinion were Haller and Harvey and they were called 'ovulists.' They supposed that impregnation consisted in endowing with vitality, that which existed already formed within the female ovary. The discoveries of DeGraaf in 1672 favored the above supposition. Hence the establishment of the theory of ovism or ovulism.

2nd.—That the new being is essentially a product of the male. Theory maintained by Lewenhoeck and Baer—Spermatists. The female parts are here regarded as a place of reception, and the young being is regarded as developed by the male semen; the physiological fact which gave rise to this opinion, was the existence of animalcules in the male semen.

3rd.—That the new being is a product equally of both sexes.

Proofs in support of this third opinion are—1. The Offspring resembles both parents.

2. Liability to disease of the new being is sometimes derived from one or other of the parents.

3. Transmission of hereditary malformations present in one, or other of the parents.

4. Mental constitution of the child bears a resemblance to that of one or other parent.

5. The temper and habits of the child also bear a like relation.

Actual contact is necessary between the male and female secretions,

The embryo is now regarded, as formed by the union of cells of both parents, and grows by the increased development, coalescence and arrangement of cells; it consists originally of 2 cells—one from the male, the other from the female,—from these cells, its tissues are formed, and from these tissues, its body is developed. This process of growth is called Epigenesis.

Consideration of the secretion of the Testes.—The secretion of the testes is the semen or spermatic fluid.

The semen consists of two parts.—Liquor seminis or semen properly so called a milky turbid fluid—and 2ndly a clear transparent mucilaginous liquid (from prostate gld. vesiculæ Seminales and Cowper's glands and from urethra itself.)

The contents of the semen are.

1.—Spermatozoa. 2.—Seminal granules. 3.—Oil Corpuscles. 4.—Epithelial cells.

Its nature chemically.

1. Albumen. 2. Phosphatic and Hydrochloric salts—and 3. a peculiar animal principle termed *Spermatine.*

The *Spermatozoa* were once looked upon as living animals, but are not now regarded as such. They have a large head, and a long whip-looking tail. They are regarded by some Physiologists as essential to fecundation. Wagner says that the smaller the animal, the larger are the Spermatozoa observed in its semen.

The semen has a weak alkaline reaction; secretion varies in different individuals, and different temperaments. It is stored up by the Vesiculæ seminales.

Consideration of the product of Ovarium.

The ova are the product,—these ova are found in the graafian vesicles which are situated in the stroma of the gland. These graafian vesicles are 10 or 20 in number. When the graafian vesicles become mature, they approach the surface of the ovary, making it prominent at the points of their situation, and we have one particular pointed prominent spot, termed the '*stigma.*' At this point the ovary bursts.

Vesicle of De Graaf consists of 2 coats an external vascular, and an internal velvety and epithelial. It is this vesicle that contains the ovum.

Corpus luteum.—When conception in the female takes place we have a deposit of yellowish matter between the two layers of the graafian vesicle. This is called the corpus luteum. It is a glandular substance. In consequence of the rapid development of the corpus luteum, the *stigma* breaks at a point where there are no vessels, called the 'non-vascular tract.'

(Not only during conception is a corpus luteum developed and an ovum discharged, but at every menstrual period; hence menstruation is called 'ovulation.')

After the ovum leaves the graafian vesicle the corpus luteum still increases in size. It continues all the time of conception and may be detected at the period of delivery, and after this time it begins to disappear, assuming the appearance of an irregular white cicatrix.

We have sometimes what are called *False Corpora lutea,* which according to Dr. Patterson may arise 1st from bursting and subsequent filling with blood of a vesicle as in menstruation: 2nd, from partial effusion of blood into a vesicle, either with or without rupture of it: 3rd, by re-absorption of the fluid of a morbidly enlarged graafian vesicle, giving rise to a puckered cyst: 4th, from effusion of blood into the tissue of the ovary,—apoplexy of that organ: 5th, Tubercular deposits: 6th, Cysts filled with yellow fatty matter.

The differences between a false and a true corpus luteum are.

False Corpus Luteum.	*True Corpus Luteum.*
1. Small in size.	1. Large in size generally.
2. Have no crecentric radii.	2. Have crecentric radii.
3. Have little or no prominence over the seat.	3. Have generally a prominence.
4. The cicatrix is absent.	4. Cicatrix always present.
5. Have a variable structure.	5. Have a glandular structure.
6. Are generally irregular and angular in form.	6. Are round or oval in form.
7. Have no central cavity.	7. Have a central cavity.

The use of the corpus luteum is to expel the ovum. Why it should increase after the ovum is expelled, is not explained as yet; perhaps it may have another influence besides the mechanical one.

Pregnancy can never take place without the development of a graafian vesicle, and the formation of a corpus luteum.

The corpus luteum which occurs at pregnancy, differs from the corpus luteum which occurs at each menstrual period, in being larger and more vascular. The presence then of a corpus luteum, is a very insufficient test of the presence of pregnancy. We must look further, to changes in the uterus, and to the physical changes in the female.

The Ovum, as already mentioned is contained in the graafian vesicle, and it is there suspended by the retinacula of Baer. Immediately around the vesicle of Baer we have a layer of granular matter forming the discus proligerous. The discus proligerous according to Wagner is situated internal to the vitellary membrane. Other Physiologists regard it as situated external. The origin of the ova is involved in obscurity, they are found in the ovary of the child at birth. The ovum does not reach the cavity of the uterus until the 10th or 12th day after conception.

Anatomy of the Ovum.

It consists first of a vitellary membrane. Secondly, of the yolk. Thirdly, of the vesicle of Baer. Fourthly, of the vesicle of Wagner, or Macula germinitiva,

When impregnation takes place, changes are effected in the ovum. 1st, cells are developed on the surface of the vitellus. 2ndly, the vesicle of Baer comes to the surface. 3rdly, the macula germinitiva disappears and we have a clear space called the area pellucida. After this we have 2 cells occupying the clear pellucid space, which are the commencement of the young embryo. Dr. Carpenter says a chink is formed in the vitellus and the spermatozoa pass into the vesicle of Wagner. He regards the spermatozoa as living cells, either dividing into two cells, or depositing two cells. These cells afterwards disappear and in their place we have a little mark, called the 'primitive trace.' This primitive trace, is the rudiment of the vertebral column. The changes which take place in the vitellus, are, first a layer of cells first show themselves, then we have a second layer of cells, and internal to this we have a third layer. These layers constitute the germinal membrane.

Germinal Membrane, is found to consist of 3 layers.

1st. External or serous, forms skin, muscles and external parts.
2d. Middle or vascular, forms blood-vessels, heart, absorbent vessels.
3d. Internal or mucous, forms mucous structures, and the secreting and albuminous structures.

It has been mentioned that changes go on in the ovum and that in the place of the macula germinitiva we had the clear pellucid area, and that this space is afterwards occupied by a dark line which is called the 'primitive trace.'

After this, we observe on each side of the primitive trace, the primitive or the lamina dorsalis. These laminæ dorsales after a time unite and leave a central canal, for the spinal cord serving to form the vertebral canal. After a short time when the contents of the canal are looked into, we find two threads, which are scarcely visible by the naked eye, and these two threads constitute the origin of the spinal marrow. These two threads are a little separated from each other.

The canal which contains these threads bulges out a little anteriorly, and is occupied by 3 pairs of cells. These after a time constitute the rudiments of the future brain.

While all these changes are going on, we observe other changes still—little darkish spots are observed on each side of the laminæ dorsales. These spots afterwards constitute the origin of the vertebræ.

After a little time, other two vesicles are formed, (besides the 3 vesicles which constitute the incipient brain)—one of these constitute the vesicle of the 3rd ventricle, and the other the future cerebellum. Shortly after this period we observe the division of the cervical, dorsal, and lumbar regions by slight contractions of the spinal column.

Here we see, that in man the spinal column is first developed, even before the development of the blood vessels.

The embryo at first is perfectly straight; after a time it begins to bend down and the two folds of the embryo constitute the *cepha-*

lic and *caudal* folds. These encroach upon the yolk bag, and the result of this is, that another membrane, as it were, is formed, which covers the embryo and which is situated between the germinal membrane and the Embryo, and in the cavity of this membrane we have the embryo placed. This membrane is the Ammion.

All these developments are from the serous layer of the germinal membrane. But now as the embryo grows, new powers are brought into operation, and immediately below the cephalic fold of the embryo we find a thickening of the second layer of the germinal membrane and when we examine this thickening, we find it composed of a number of nucleated cells aggregated together, and after a time we find that this indicates the position of the *Heart* (the punctum saliens). By the coalescence of the nucleated cells on the surface we have formed the new contractile heart, and the nucleated cells in the centre remain free and form the blood globules. At the same time of these changes, we observe changes taking place in the vascular layer of the germinal membrane generally, and a minute vascular system is in formation—the nucleated cells on the surface forming the blood-vessels, and the nucleated cells in the centre forming the blood globules. We observe two veins running towards the Heart and 2 arteries proceeding from the Heart, and there is a large vessel running around the vascular membrane. Here then we have constituted the 'vascular area.'

The embryo is now said to be within the 'Zona pellucida.' (The vitellary membrane is called by some authors the Zona pellucida from its transparency. Others again consider the vitellary membrane as consisting of two layers and they consider the external layer, as the Zona pellucida. This Zona pellucida according to Wagner forms a structure which is afterwards named the 'Chorion.')

In the passage of the ova down the Fallopian tubes, we find a number of tuft-like processes thrown out—constituting the chorion. In the uterus the tuft-like processes disappear in great part, accumulating at one particular point, where they are highly developed, and we have the placenta there afterwards situate.

The next thing observed are markings which indicate the eye, ear and little processes constituting the anterior extremities, and from the side of the dorsal fold which forms the vertebral column, we find laminæ sent off on each side. These are the abdominal laminæ. The laminæ curve round and form the walls of the Thorax and abdomen. The course of the laminæ then is from behind forwards, and not from before backwards. Hence the explanation of such diseases as congenital hernia, cleft palate &c., which arise from arrest in development. The abdominal laminæ enclose a part of the vitellus—constituting the future intestinal canal.

These developments are from the internal layer of the germinal membrane.

Development of the Vascular System.

The vascular system is developed from the 2nd layer of the Blasto-

derma as it is sometimes called (germinal membrane). We have the vessel formed which passes around the vascular area. We have the punctum saliens. The blood is collected from the vascular area and reaches the posterior aspect of the heart by 2 veins, and from the anterior aspect of the heart 2 arteries proceed. After a time, the form of the Heart becomes changed, it becomes slightly convoluted on itself, and three apartments are formed, one for the future auricle, (called *atrium,*) and in it the veins empty themselves, one for the future *ventricle,* and a third the *bulbus aortæ.*

The two arteries which proceeds from the Heart, ascend a little way, and pass around the posterior part of the Trachea, and then unite into one vessel, forming the descending aorta. Subsequent to this, we find the auricle rising gradually behind the ventricle, until it occupies the posterior part. In the mean time on the external surface of the ventricle, we have a notch, which indicates the primary division of the ventricle into two cavities. We have formed afterwards, a septum which serves to separate the ventricles. In the mean time, we have in formation a septum in the auricles, in the form of the eustachian valve. After a short time we have a true septum formed, (not by the eustachian valve) and in the middle of this septum we have a foramen. This septum becomes complete after birth. The Bulbus aortæ afterwards, become split up into two vessels a septum being formed in it. These two vessels are the aorta and pulmonary artery. From this aortic bulb we have a very curious vascular structure given off, these are the branchial vessels, of which, there are five pairs, and they unite with the descending aorta. Certain changes take place in these vessels—the first on each side become the right and left pulmonary artery, the second on left side, the aorta, the third, on left side, the subclavian, and the 4th and 5th on the left side, the subclavian and the carotids of both sides. With the exception of the first, all the others on the right side disappear. In some cases they are allowed to remain and constitute irregular distributions of the arteries of the neck.

The venous system consists of an anterior vein formed by the vertebral, and a posterior vein the vena azygos, which supplies often the place of the inferior cava, and is developed before it.

Digestive system,—development.

Originally formed by a contracted portion of the yolk. At first a straight tube. It afterwards dilates at some parts, and contracts at others, abrades at the fauces; towards the anal extremity, we have a development of it in the form of the allantois, which afterwards forms the bladder, and its remains constitute the urachus.

Glandular system,—development.

The glands consist of developments superadded to the alimentary tube; composed of deposits of soft tissue, and in this tissue we find cavities:—We have these developments enlarging and becoming continuous with the intestinal canal. In this way we find that the lungs

the Parotid, the Liver and Pancreas are formed; but not the kidneys, ovaries, or Testes.

Nervous system,—development.

Of all the structures in the embryo, the nervous system is first distinctly laid down.

We have already remarked of the existence of 2 threads in the canal of the spinal cord, and at the extremities of these, we find 3 pairs of primitive vesicles. The most anterior are the cerebral, the central are the optic, and the posterior the medulla oblongata. We have also remarked that soon after this, we have 2 other pairs of vesicles developed, one the vesicles of the 3d ventricle, and the other for the cerebellum.

At first, the spinal marrow reaches the length of the coccyx, but by degrees it becomes shortened, and in the adult we have it occupying only the cervical, dorsal, and lumbar regions; no portion of it being found in the Sacrum and coccyx.

The 1st or cerebral vesicle is found to be a prolongation of the anterior column of the spinal cord. This vesicle becomes very much developed in man, and finally sweeps over the other vesicles and covers them in, constituting the hemispheres of the cerebum, and become united by a commissure, the corpus callosum. This commissure is absent in many of the inferior animals. From this first vesicle is formed not only the hemispheres, but the corpora striata, the ganglion supposed to be the seat of motion.

The 2nd vesicle is a prolongation of the middle column of the spinal cord and is found to contain the thalamus nervum opticorum, the ganglion of sensation.

The 3rd vesicle or the vesicle of the medulla oblongata, is the continuation of the posterior columns of the spinal cord, and it is supposed to have influence in the regulation of motion.

The 4th vesicle is the vesicle of the 3d ventricle, and the *5th vesicle*, that of the cerebellum, the seat of the co-ordination of muscular movements.

These 5 vesicles are first tubular and filled with fluid; after a time solid deposits are found in them.

In the early brain we find no distinction between the white and grey matter. The organ however increases in size rapidly;—much more rapidly than the texture in which it is placed, hence the formation of *convolutions*.

The minute nerves are formed first and completely, long before they unite the central nervous mass, they are not offsets of the brain and spinal cord, as they were once supposed to be, but, are totally independent of them. The organization however of these is completed

by their union with the central nervous organs. Along with these is developed the organs of special sense. In the case of the eye, we find that a vesicle proceeds from the brain, derived from the vesicle of the 3d ventricle.

The internal ear is also formed by a prolongation of the brain in the form of the auditory nerve.

Development of the face.

It has already been remarked that the development of the lateral laminæ of the fœtus was from behind forward; and therefore the development anteriorly is deficient at an early period of embryonic life. At first the face has no existence, but afterwards in consequence of the union of the laminæ with each other the face is gradually formed. The frontal bones first make their appearance; then we have the superior maxillary bones formed; then the inferior maxillary bones, and then the oshyoides, and in the cleft high up we have the vomer.

Genito Urinary System.

The sexual organs in man and animals generally, make their appearance latest of all.

When we examine a fœtus of about six weeks old, and on opening the abdomen we find in it two convoluted bodies of considerable size, called the Wolfian bodies (named from their discoverer), occupying the whole of the abdomen. These bodies consist of transverse cœca opening into a central duct, forming as you see the simplest variety of a secreting gland. Behind these cœca we have the kidneys with their supra renal capsules developed. The kidneys are first small and lobular and the supra-renal capsules of large size, afterwards we have the kidneys enlarging and the supra-renal capsules becoming comparatively smaller.

The Wolfian bodies are first of great size, but in proportion as the kidneys and supra-renal capsules increase, they grow relatively small, and come to be placed more inferiorly. Upon the inner and anterior part of the Wolfian bodies we have a deposit of formative tissue. This deposit is for the development of the future testicle and ovary, as the case may be. At first the ovary and testicle are undistinguishable; after a time (in the male), this deposit unites with the tube of the Wolfian body, and we have thus the testes and vasa deferentia formed. The cœca then become removed except a few at the top, which serve to form the epididymis.

In the female we have this difference, the ovary never unites with the tube of the Wolfian body, and the tube afterwards constitutes the Fallopian tube, and the cœca similarly disappear with the exception of a few at the top, which become the fimbriæ of the Fallopian tubes.

When speaking of the development of the digestive apparatus we observed the development of a vesicle which was named the allantois. This allantois opened into the cloaca. It is this allantois which afterwards constitutes the bladder. Partitions form, and we have certain divisions made, one for the urinary apparatus, one for the genital apparatus, and a third for the rectum. The genital apparatus in the male is not so fully and largely developed as in the female, consti-

tuting the vesiculæ seminales and prostate gland and the remains the anterior perineum which in the male is similar to the hymen of the female.

The fundamental type of the human embryo then, is neutral. At first there is no sex:—then the sexes become common and undistinguishable; finally, the sexes become single.

The resemblance of the sets of organs in the male and female are very similar and Dr. Simpson gives a diagram which very closely illustrates this. The intent of his diagram is to show that

In Male.	*In Female.*
Testes—ore analogous to the	Ovaries.
Epididymis.	Fimbriæ fall: T.
Vasa deferentia.	Fallopian tubes.
Vesiculæ seminalis.	Fundus uteri.
Prostate gland.	Cervix uteri.
Gubernaculum testis.	Round ligament.
Pelvic urethra.	Vagina.
Anterior perineum.	Hymen.
Corp: caver: penis.	Clitoris.
Corp: spongios. ureth.	Nymphæ.
Scrotum.	Labia externa.
Tunica vaginalis testis.	Process of Nuck.
Cowper's gland.	Cowper's gland (smaller).

The complete organization of the male is indicated by the perfect development of his external generative organs. It is a very curious thing that the female has her generative organs arrested for the purpose of reproduction, for when the period of her menstrual discharge comes to an end, (at the age of 40 or 45) or when her period of reproduction is finished, she very often exhibits a tendency to go forward to the male type, her voice deepens, her mind becomes somewhat like that of the male, hair grows on different parts of her body, and she loses that peculiar timidity observed in the female. Again on the other hand, when the male becomes so situated as to be deprived of his generative organs, as in cases of castration, he assumes the female type, he has a timid mind, his voice becomes shrill, he has a tendency to become fat, his breasts enlarge, he never becomes hairy. These all show the tendency he has to retrograde to the female type.

Development of the Skeleton of the Embryo.

The rudiments of the skeleton are perceived at a very early period of embryonic life. Bones are developed from cartilage, and the first portion of the bony fabric that becomes developed is the vertebral column. The cranium is merely a prolongation of the vertebral column and consists of three vertebræ which have their laminæ expanded for the purpose of containing the nervous mass, the *brain*.

The first point of ossification takes place in the 7th month, and is seen in the clavicle and lower jaw. Some bones never ossify till after birth as Patella—coccyx and carpol bones (Table of ossification in Wilson's Anatomy).

Certain peculiar structures found in the Uterus during the development of the fœtus.

It is 2 weeks before the impregnated ovum reaches the cavity of the uterus, and in the meantime we have certain important changes taking place in the uterus for its reception.

It is supposed that about 7 days after conception a flocculent membrane is found lining the cavity of the uterus (an hypertrophied condition of the mucous membrane, by some). This membrane exists entirely independent of the ovum, and is found before the ovum reaches the uterus. It is called the *membrana decidua.*

The *membrana decidua* continues the whole period of gestation, and is thrown off in shreds after parturition, with the lochia.

It is sometimes termed, *membrana decidua vera* to distinguish it from the *decidua reflexa.* It is vascular—its inner aspect is smooth; its outer rough: presents in general three orifices—corresponding with the Fallop tubes on each side and the other with the cervix uteri—any or all of which, may be absent. The membrane is not peculiar to the human species. It is found in the uterus of mammals in general.

Decidua reflexa, is another membrane—so called because it was formerly imagined that the ovum in passing into the uterus carried along with it a portion of decidua in the form of a reflection. There some little doubt about the formation of the *decidua reflexa.* Some suppose it to be reflection while others consider it a new formation. It is termed the decidua reflexa of Hunter.

Decidua Serotina

This decidua is generally situated at the opening of the left fallopian tube, and is the point in the human subject to which the placenta becomes attached.

Placenta.

It has been already remarked that the outermost membrane of the ovum is the chorion, and from it villi proceed. These villi are composed of tufts of cells which are non-vascular at first. The villi are bound down by a very delicate basement membrane and in time act like litle rootlets, so to speak.

We have now got the ovum into the uterus, within the chorion, and we have the membrana decidua lining the cavity of the uterus. In the mucous membrane of the uterus we observe the tubular follicles becoming enlarged, elongated, contorted, and very vascular; their secretion also becomes increased.

At first it is believed that the embryo is nourished by the cells of the villi coming in contact with the secretion of the tubular follicles of the uterus. After a time changes takes place in the chorion; we observe the villi disappear in large amount from its surface and accumulate at one point, and these villi are observed to become vascular. We observe that vessels are carried from the allantois to the villi, and thus the fœtal portion of the placenta is formed. This fœtal placenta then

joins the decidua serotina and the compound organ named the placenta is formed. The placenta then, belongs partly to the mother and partly to the child.

The placenta is an exceedingly vascular organ, and has close connection with the maternal and fœtal vessels.

It has for a long time been in doubt, how the fœtal and maternal blood were brought together. It was formerly supposed that the maternal and fœtal blood were one and the same, but such is now proved to be incorrect, the maternal and fœtal blood never leave their proper vessel, and the only change that occurs in them is transudation through a membrane.

Fœtal portion of Placenta.

When we examine the fœtal portion of the placenta we find that it consists of highly vascular tufts in great number, constituted of capillary vessels and enclosed in a membrane, which contains within it a layer of nucleated cells. These tufts constitute the lobes or lobules of the fœtal placenta. The blood which enters the tufts, does not pass out, but is returned back to the fœtus by means of the umbilical vein. The nucleated cells are situated between the basement membrane and the capillary tuft.

Maternal portion of Placenta.

When we examine the surface of the uterus we find the 'curling arteries,' the lining membrane of which, covers the tufts of the fœtal placenta, and forms a large bag, so that the tufts of the fœtal placenta are in a manner embedded in this bag. The way in which nutrition takes place is this,—the cells of the maternal placenta elaborate certain elements of nutrition, these elements are thrown into the cavity between the maternal sac and the capillary tufts, and from this cavity the cells of the villi take up the nutritious elements. The maternal blood having performed its duty, is returned by the utero-placental veins into the system of the mother. The great fact worthy of recollection is, that the maternal and fœtal circulation come in close contact, but never run into one another; no such thing as transmission of blood takes place. Our information on this point we owe to the late Dr. Reid.

The matter elaborated and thrown into the materno-fœtal sac by the maternal cells, has all the characters of milk. The fact has been proved by Dr. Simpson.

The placenta is situated over one or other of the Fallopian orifices—Naegele, by means of the Stethescope ascertained out of 536 midwifery cases he attended, that the placenta was situated on the left side in 238 cases—on the right side in 145 cases—on the fundus uteri in 7 cases—and in 160 cases he could not detect the true situation.

Uses of the Placenta.

1st. The placenta is the organ of respiration of the fœtus. 2d. It is an organ for the secretion of a peculiar matter identical with milk.

3d. It is an organ of nutrition. 4th. It is an organ which serves to bring together the maternal and fœtal circulations. It is then evidently an organ of special office.

Umbilical Cord.

The means by which the fœtus is attached to the placenta, is the umbilical cord. This cord varies in length remarkably. Sometimes it is 8, 10 or 12 inches in length—at other times it is enormously enlarged. Out of 675 midwifery cases in the Madras Lying-in-Hospital, the greatest length reached 53 inches and the shortest 13 inches—so that on an average we have it $25\frac{8}{46}$ inches.

The umbilical cord is formed by the umbilical vein—2 umbilical arteries—the ductus vitello intestinal is, some filamentous tissue which contains gelatinous fluid, and the omphalo-mesenteric vessels. Nerves and lymphatics have never been detected in the cord.

Structural peculiarities of the Fœtus.

These depend on—

1. The imperfect consistency and organization of its solids,—for instance, the imperfect development of the bones, cartilages, nerves and organs of special sense.

2. The exclusive presence of certain organs; for instance the presence of membranes, placenta, umbilical cord and vessels, omphalo-mesenteric vessels, ductus venosus, ductus arteriosus, foramen ovale, thymus gland, pupillary membrane, Wolfian bodies, &c.

3. Upon the relative. a. size, b. situation, c. number and d. form, of organs; for instance—

a. Comparatively large size of upper half to that of the lower half of the body; the large size of head comparatively, the large size of liver, eustachian valve, thymus gland, supra-renal capsules.

b. The uterus, bladder, ovaries, and testes instead of being within the pelvis, are situated in the abdomen, and the spinal cord of the fœtus extends as low as the coccyx, not so in the adult.

c. The ossa innominata consist each of three bones; intermaxillary bones are observed in the fœtus.

d. The lobular appearance of the kidneys in the fœtus; not so in the adult.

4. Upon the constitution of its fluids—for instance, the blood of the fœtus possesses larger globules than that of the adult, the serum is more abundant, whilst the fibrine and salts are rather deficient, hence the reason why coagulation takes place more slowly. The bile of the fœtus contains no picromel. The urine contains very little urea, and the skin of the fœtus secretes a certain unctuous matter called *vernix caseosa.*

Physiological peculiarities of the Fœtus.

1. Its peculiar circulation. The circulation of the fœtus solves a very beautiful, though difficult problem.—How can the apparatus of

a double circulation, be made single, and yet be instantly capable of assuming the complex type when circumstances require it?

2. In the peculiar function of respiration.

3. The mode of its nutrition. Before the placenta is formed the villi of the chorion take up the secretion of the follicles of the uterus. It was formerly supposed that the liquor amnii was the means of affording nourishment to the embryo in the early stage. This subject is doubted. We know however that the liquor amnii does not afford nourishment to the embryo during the latter period of utero-gestation, and this is proved by the fact that the liquor amnii only possesses 2 per cent of albumen, also from the fact, that the liquor amnii may be diseased and still cause no injury, and again the liquor amnii may be discharged weeks before the child is born. The placenta is the great organ of nutrition. It is the organ also of respiration of the fœtus, and that the placenta is the true seat of nutrition is evident from the fact that both the healthy and morbid conditions of the placenta influence the child. If the placenta be diseased the child is sacrificed, if in a morbid state, we have atrophy of the child.

The placenta is the only connection between the fœtus and its mother, and diseases are transferred by the placenta from the latter to the former. Small-pox, Scarlet-fever, Ague, Syphilis, &c.; we know also that medicines effect the fœtus in utero.

4. Mode of secretion of the fœtus. The bile contains very little Picromel, the urine very little urea, the skin secretes the *vernix caseosa*.

5. The power the fœtus possesses of regenerating, (to a certain extent) lost parts. This power of regenerating lost parts is inversely with the position of the animal in the sale of developement. The fœtus in utero presents some of the characters of a reptile. The starfish possesses a remarkable power of reproducing lost parts, so does a reptile and so does the fœtus, and when the fœtus quits its station and assumes a higher form of development, then in the same proportion does it lose that power of regeneration; the higher the animal is in the scale of organized beings, the less is its power of reproducing lost parts.

6. The life of the fœtus is essentially the period during which formation and growth are in great activity. The fœtus in utero possesses both motion and sensation. This is evident from the occurrence of "quickening,"—also from the influence of medicines. If you apply your hand cold, to the lower part of the abdomen the fœtus moves. Dr. Watson mentions a case where the fœtus took ague;—the mother also took ague, and on alternate days, so that the day the fœtus took ague the mother was clearly aware of it.

Diseases of the Fœtus.

We are subject to diseases long before our birth, dependent upon the constitutional state of our parents.

The fœtus is subject to all forms of disease, to malformations,

atrophy, partial arrest of development anteriorly giving rise to cleft palate &c., and to the different forms of hernia; arrest of development posteriorly, giving rise to cerebral hernia, spina bifida. We have diseases arising from inflammation. Inflammation of the Brain and its membranes, pus and serum effused, abscesses.

Inflammation of thorax.—Pleuritis, pneumonia, abscesses, condensation of lungs, tubercles.

Inflammation of abdomen—Peritonitis, tubercular deposit in peritoneum, abscesses, dropsies, incysted tumours, ulceration of intestines, &c. Besides all this a form of "spontaneous" amputation is brought to our notice by Dr. Montgomery of Dublin, as having occurred to the limbs, brought about by bands or cords of organized lymph, the result of inflammatory action.

Contagious diseases.

Children have been known to be born dead during the epidemic at Paris, with ulceration of the intestines. Carbuncles, buboes, scarlatina, small pox and measles are all diseases to which the fœtus is subject. Dr. Jenner mentions a peculiar case where a pregnant woman having previously suffered from small pox, when exposed to the contagion a second time did not take it, but the fœtus she was bearing at the time took it and died. Dr. Watson mentions a case of a pregnant woman who was residing in a place where the children of the house had hooping cough, when she delivered, her child had hooping cough soon after it came into the world.

It was formerly supposed that the affections of the fœtus depended on the impression made upon the mind of the mother. This opinion is a very popular one, and perhaps not quite an erroneous one.

The diseases then the fœtus is subject to, are numerous. To enumerate further Hypertrophy of the heart, diseased valves, dilatation of arteries, aneurism by anastomosis. Tumours (malignant and carcinomatous). Fractures due to excessive muscular action of the uterus or of the fœtus itself, and not to mismanagement or illtreatment during delivery. We have also dislocations of a congenital nature. Marc, a German physiologist mentions a case of congenital dislocation of both hip joints.

Diseases contracted during the progress of parturition.

Dislocations, lacerated wounds, Leucorrhœal or gonnorhœal Ophthalmia, alterations in the skull and lastly, as phyxia, by pressure on the placenta or on the umbilical cord.

Termination of Pregnancy.

In 9 solar or 10 lunar months the development of the fœtus is completed. These 9 solar months + 1 day equals 40 weeks or 280 days, which are equivalent to 10 lunar months.

The act of parturition is that act of the uterus; combined with the action of the abdominal muscles, to expel the contents of the uterus; and this takes place when the fœtus is sufficiently mature to sustain respiration; the act is termed "labor."

Parturition takes place as a special reflex act, and the child is expelled.

Length and weight of the fœtus at different stages of development to its perfect completion.

On the 4th day after conception the embryo is about 1 line in length.

In the 3rd week 2 lines.

In the 4th week 3½ lines; at this time we can detect the Heart, Liver, Brain and origin of the extremities.

In the 5th week the embryo is ½ an inch long. In the second month it is one inch long and weighs about 20 grs., the rudiments of the muscles are now observed and the glandular system is becoming developed and we observe the digits notched off. In the 4th month the embryo is 4 inches in length and the sexual organs can be distinguished. In the 5th month the movements of the embryo can be felt by the mother. In the 6th month the embryo weighs 2-lbs. and if the embryo be expelled it may breathe a little but cannot live. In the 7th month the fœtus is 16 inches long and weighs from 2 to 4-lbs. In the 8th month the fœtus is 17½ inches in length, and weighs 5-lbs. In the 9th month the fœtus is 18 inches in length and weighs 6 or 7-lbs. In the 10th lunar month the fœtus is 18 to 22 inches in length and weighs from 7 to 8-lbs.

Milk.

After the child is expelled from the uterus, it is then supported and nourished by a peculiar secretion from the mammæ of its mother—this secretion is known as *milk*.

At an early period of pregnancy pain is felt, attended by enlargement of the mammary glands, the tubes or ducts of these glands enlarge, the nipple instead of having its general pinkish hue becomes darker and darker in color and finally when parturition occurs is very dark and of large size. After parturition has taken place, a feverishness is experienced about the 2d or 3d day, and with this we have the secretion of milk. The first milk secreted by a woman after parturition contains yellow corpuscles or globules of *colostrum*. The use of these globules of *colostrum* is to act as a purgative and expel that peculiar carbonaceous substance from the intestines of the child known as *meconium*—if we have the secretion of milk in any way delayed we are obliged to supply its action by castor oil, &c. After a short time the *colostrum* globules are removed, and we have the milk perfectly pure.

The child is weaned by the mother in 11 or 12 months. Menstruation ceases during pregnancy and lactation, but as a general rule returns when these have come to an end.

MADRAS JOURNAL OF MEDICAL SCIENCE.

APRIL, 1854.

THE sudden departure of the Editor for Bangalore must plead our excuse for paucity of editorial matter in the present issue. We promise a better supply in our next, as we are in treaty with a permanent Editor.

WE are extremely glad to notice the return to the Presidency of our excellent Surgeon General Dr. Godfrey. This gentleman, has been sent on duty to Secunderabad, for the purpose of reporting on the European Barracks and Hospital at that station, and we hear that it has been the opinion of the Committee of which Dr. Godfry was President, that the Barracks and Hospital should be condemned on sanitory reasons. No one acquainted with the localities can feel surprised at this, for the present Infantry barracks stand in one of the worst and most unhealthy spots to be found about the cantonment, although abundance of fine high ground is available. We trust now that the proposed Barracks will be built on the most elevated spot to be found and every attention paid to complete ventilation in their erection. The plan of the Infantry Barracks at Bellary is about the most judicious that we have seen in India.

WE are glad to notice the result of the final Examination of the Military Students at the College last month. All the Apprentices of the class, passed for Assistant Apothecaries, and have been since promoted to that grade and appointed to the Army. With the exception of two, the Medical Pupils have also passed, and have also been posted to Corps and Departments.

We hear that there was a great want of Medical Assistants, before these Students passed.

Mr. P. M. Hyasawmy has passed his final Examination for Native Surgeon, and has been appointed to the Zillah of Nellore. We believe this is the first 2d Dresser who has passed the required examination, and we congratulate him warmly. To our own knowledge he has studied diligently, and we would strongly recommend his example to our readers in the Department, who would wish to aspire to his rank.

We are glad to be able to publish in this number, Notes taken by Mr. Hadden, of Dr. Smith's Lecture, on Reproduction. Dr. Smith's system of lecturing his classes is excellent, and his style of address so simple, that the youngest understand him perfectly.

Mr. Hadden has our best thanks for the notes.

In Surgery, as in all other branches of Scientific knowledge, our American brethren are making rapid advances. In proof of this we may mention a remarkable operation, which Dr. Carnochan thus describes in the "*American Medical Monthly*":—

"Restoration of the Entire Upper Lip.—There are but few recorded instances of restoration of the entire upper lip after destruction of its tissues, and the rules, so far in regard to the best mode of operating in such cases are indefinite for want of established results. Ledran, in a case of cancer of the whole of the upper lip had no other resource to mask the deformity after the operation than to make the lower lip ascend to the base of the nose. Lisfranc and the younger Berard have related each a successful case, and I record, below, another, in which the attempt at making an entire upper lip was followed by complete success. In each of these instances the Celsian mode was adopted; that is, after removal of the disease by angular incisions lateral quadilateral flaps are detached by dissection, and then brought together on the median line. The cheeks thus contribute to the formation of the new lip, the free edge of which is constituted by the bleeding edge of the lower horizontal incisions, whilst the upper horizontal incisions are united to the base of the nose. In the present instance union was complete, cicatrization perfect, and another new lip formed by the twenty-third day. The character of the patient's face was

restored to its natural aspect, and she went home in much better health and spirits than she had enjoyed for years.—Dr. CARNOCHAN *in the American Medical Monthly.*"

WE believe that unprofessional people not unfrequently do themselves injury by studying Medical publications, as such, work upon the imagination and lead them to fancy themselves afflicted, more or less, with the diseases that form the subject of their study. Even Medical men themselves too are not exempt from this weakness; for Dr. Corson tells us that Laennec died of phthisis, and Corvisart of disease of the heart, and when the celebrated Professor Frank, was preparing his lectures at Pavia on the latter disease, his own heart became so much affected that he was obliged for a time to desist from his studies. The same writer says too that Medical Students exhausted by a Winter Session, are apt to be special subjects of real or fancied irregularity of the heart. It seems tho' indeed nothing more than natural that the study of certain diseases should sometimes favour their real or imaginary development.

WE are sorry to learn from the home Medical journals for March, that notwithstanding the generally perfect equipment of the magnificent fleets which had recently quitted the shores of England, there is one department so miserably cared for and consequently so deficient, as to reflect deep discredit on all concerned. We allude to the Medical Department, for it is stated as a fact too notorious to be concealed, that Admiral Napier's fleet put to sea to encounter the perils of war, and possibly sickness; deficient both in number and in standard of qualification of its junior Medical Officers. Full Surgeons, says the *Lancet*, have actually hesitated to go to sea in consequence of being unprovided with adequate assistance; for such is the deficiency of Assistant Surgeons, that full Surgeons have been compelled to perform the duties of Assistants, and there are none

to fill up the numerous vacancies at the bottom of the list. All this comes of the depreciatory system, in practise in the Naval Medical Service, which all the English Military journals have protested against for years past, as so lowering to the profession, that no young gentleman possessing a diploma, and not absolutely destitute of all prospect of employment ashore, and not altogether wanting in self-respect, would condescend to enter this degraded service. The evil will now however cure itself, for the Admiralty will be compelled to place the Assistant Surgeons of the Navy in that position to which they are entitled by their education, and profession, or the service will be at a stand, and Parliament already apprised of the above facts by that staunch friend to the Services, Colonel Boldero, will soon insist on a change of measures. On the present occasion it is stated that the Medical department of the fleet has been completed by the admission of young men to the rank of Assistant Surgeon, whose professional qualifications are far below the heretofore established standard, thereby lowering the respectability of the Service, and risking the lives and health of our gallant seamen now serving in the Baltic fleet.

We observe that the Board of Ordnance have ordered the Medical Staff to instruct the Bandmen and Drummers proceeding to the seat of war, in the art of binding up wounds, and attending to the sick, in which capacity these men are often employed on the field in European warfare. It might be well for the Indian Authorities to take a hint from this very judicious measure, as our wounded on all occasions suffer much from delayed attendance after a severe engagement in India.

We subjoin a very interesting report by Dr. Francis Day, of the 1st Madras Fusiliers, on the diseases of Burmah, especially those prevailing in Pegue and Martaban :—

"I now propose to make some observations that occurred to me during a residence in Pegue and Martaban.

Early in Decemher, 1852, we were ordered to embark with a detachment of the regiment, for the purpose of relieving the former place. We were several days in the river, which is wide, rapid, and muddy, with banks as verdant as those of the Rangoon river, into which it empties itself. Few vessels pass up it without some cases of cholera occurring. We had two cases; also one of sun-stroke.

Having relieved Pegue and its little garrison, we found there a few cases of small-pox. As a town, nothing much can be said of Pegue. Only one pagoda existed at that time; this was used as a citadel. But being commanded at four different points, of course there were many cases of gun-shot wounds.

Having to drive the enemy's army across the country, over the Setang river, for a few days we were marching and counter marching. Several cases of *coup de soleil* occurred, and the cholera also broke out. The cases of sun-stroke were not very severe; and usually yielded to a stream of cold water being poured over the head, a little brandy-and-water administered internally; and, after one or two days, general bleeding usually afforded great relief, for then some symptoms of congestion or inflammation of the cerebral organs had mostly set in.

Some of these cases die before they can be visited by the Medical officers; and *post-mortem* examinations discover great congestion of all the superficial vessels of the body, and engorgement of the lungs, and brain, and spinal cord.

The cases of cholera in their attacks showed the remarkable peculiarity so often observed, in their being exclusively confined to the men of one regiment, though there were detachments here from four different corps. All were fed from the same commissariat, slept on the same ground, and performed the same amount of duty. In less than a week, nearly twenty-five of those attacked were dead.

Concerning the contagiousness or non-contagiousness of cholera, as that is a mooted point in Europe, though one quite at rest in Asia, I will give one or two facts which have come under my own observation, and which could be increased *ad infinitum* from the experience of others.

In August, 1852, while marching with a regiment one thousand strong, with at least four thousand camp followers, one day the camp was pitched on the brigade-ground at Arcot; the next day, nineteen cases of cholera appeared; and, during the subsequent twenty-four hours, ten more cases showed themselves. The first ten attacked rapidly sank, and nine of the remaining cases died after more or less time. The symptoms are well known, but the remarkable earthy smell which was exhaled from the persons suffering under this terrible scourge is very peculiar. Cholera in a most virulent form is present in many places in India; and so fatal is it, that as sure as regiments

encamp on some grounds, so sure are they to have the disease among them in the morning.

The first cases are always the most fatal. Apparently, if we may so call it, a choleraic diathesis exists in some persons, who, perhaps, to all outward appearances, are in the most robust health; and one who has this diathesis will be most easily affected by the peculiar poison lurking in the atmosphere. Those who are thus rapidly attacked are most rapidly carried off. The favourite prophylactic is soda water and brandy. Carbonate of soda produces excellent effects among the natives when attacked with this disease.

I returned to Rangoon with the sick and wounded; and, after a few days, was ordered to Martaban and the eastern provinces with General Steele's land column. Martaban was said to be a perfect pest-house for fever and dysentery. It is a miserable place, situated on the banks of the Moulmein river, and consists of two parts, the upper and lower town. The town borders on the river, and is partly surrounded by it, in addition to jungle and marshes. The trees had all been cut down a few months previously. The town has never been free from fever. The Burmese say, it is caused by decayed trees and vegetable matter; but that villages placed on the borders of woods (which is generally the case here) are the most healthy. The Europeans looked most sickly. Two-thirds of the Sepoys were either in hospital, invalided, or dead.

The fever is of two kinds, the intermittent and the remittent. The former is not so fatal, unless complicated with dysentery, as the latter form, the most fatal cases of which were usually of about three days' duration. It generally appeared in the following manner:—A patient would apply to the Hospital with symptoms of fever—a very quick, small pulse, and agitated manner; sometimes a headache, at other times none. Extreme prostration, with diarrhœa, would set in during the night, accompanied with cold, clammy sweats; great pain suddenly commenced in the abdomen, increased on pressure, with other symptoms of low peritonitis. The stools of a thin brown or greenish colour, and of the consistence of pea-soup; and such general weakness, that bleeding would be quite inadmissible under these circumstances. Only one plan of treatment appears advisable—calomel and opium given rapidly, so as to procure salivation and mercurial ointment rubbed in externally; leeches to be applied to the abdomen to the greatest extent without exhausting the vital powers; afterwards, warm bran poultices over the whole abdomen. I have seen several of these cases recover under this treatment. I have seen others die, all means having failed to arrest the rapid progress of the disease. Sometimes, towards the termination, many of the symptoms of cholera would appear.

Usually, after death, an ulcer of the bowel was found to have perforated the small intestine, and their contents had escaped into the peritoneal cavity.

The cases of intermittent fever sometimes took on the same type, and were then of as dangerous a character as the remittent form.

In Burmah, dogs exist in vast numbers, and, being intolerable nuisances, some of the officers used to turn out to destroy them. This most dangerous proceeding has cost several that I could name their lives. Hepatitis, fever, or dysentery have been induced from the necessary exposure to the sun; and these cases have usually terminated fatally.

Shooting appears to kill more officers in India than anything else. They are in swamps all day; "wet feet and baked heads," unless their skulls are too thick for the sun to penetrate, and brandy-and-water to keep up their powers to the proper pitch."

There is we believe too much truth in the assertion contained in the concluding sentence, for we have known very few regular snipe-shooters whose lives did not suffer in the long run from continual exposure in the sun, and the tendency thereby created for brandy and water.

We subjoin a letter recently addressed to the *Times* newspaper by the eminent Mr. Guthrie, which is equally applicable to Indian Service in active warfare :—

"Medical Preparations for War.—The following are extracts from a letter by Mr. Guthrie, which lately appeared in the *Times*. Mr. Guthrie says of the Surgery of the war from 1808 to 1815, and of the result of his applications to the war authorities in time of peace :—"The Medical men were almost always unequal, from the paucity of their numbers, as well as their inefficiency, to the duties required from them; and the wounded, although all receiving some little attention, were necessarily neglected on many points essential to their safety. When historians write, and probably with truth, that more than one-half the British army in the Peninsula was at one time absent on the plea of sickness, it may be, perhaps, as well to know the reason why, and how an evil so destructive to all political as well as military arrangements is to be avoided in future. Some years ago, when Lord Hill was Commander-in-Chief, and Lord Vivian Master-General of the Ordnance, I drew their attention privately to the inefficient state of the carriages in use in the British army for the conveyance of wounded men. They assented to a trial being made of some supposed improvements, and after several boards of officers, military and

Medical, had investigated the subject, an estimate for 500*l.* was referred from the Ordnance to the Treasury for the purchase of such carriages as might be found, on trial, the most perfect. The Chancellor of the Exchequer, instead of assenting to the estimate, refused to approve, and is said to have declared that, as there was no war, there was no necessity for carriages to convey wounded men. He might as correctly have refused to find money to build ships, cast cannon, or make gunpowder. I had unfortunately omitted to propitiate the gentlemen at the Treasury, who did the business of the doctors." Mr. Guthrie's applications were not confined to the Horse Guards. He heard of the destitution of the wounded after the great battles of Moodkee and Ferozeshah, in India, and at once drew the attention of the Directors of the East India Company to the subject in a letter from which the following are some detached extracts :—" The following selections from a letter from one of the Medical Officers present at the late battles in India were not written for publication, and are by so much the more valuable, and to be depended upon. They show in a plain and decisive manner the inefficient state of the Medical department, and the Medical arrangements with that part of the British force lately engaged on the plains of the Sutlej. The letter itself is not one of complaint—it reflects on no one. It is a mere statement of facts, and might have been written by any of the Medical Officers of regiments during the first parts of the Peninsular War, showing at that time even a greater degree of destitution and of human suffering :—' Ferozepore, Dec. 25, 1845.—I have just brought in the wounded of our regiment, 175 in number, to this station, where there is a commissariat, and some accommodation. I am here single-handed, the regiment being encamped four miles off. The labour I have undergone has been excessive. I am one of four, three of whom are absent. One claimed the sanitary depôt, a second was left at Kussowlee, a third is in camp with the regiment, and I am here alone. How can I be expected to practise scientific surgery surrounded by 175 wounded men, all clamouring and beseeching for assistance? I have no time to do anything satisfactorily. I have, however, managed to do four amputations to-day, and dressed the greater number of serious cases, including two amputations I brought off the field, and am quite weary of the bloody work. Instead of 75 doolies or litters to which our regiment, 750 strong, was entitled, on the evening of the 16th, when we began our march, the commissariat could only supply 24, each being short of two bearers; the others soon began to drop off, owing to the severity of the work, so that, by the time we reached Moodkee, only 12 doolies remained for service. There was no Medical chief appointed that I heard of. It was, perhaps, thought the fighting would soon be over, and the wounded but few. If so, we reckoned without our host. We had in the field with us, according to your directions, a quantity of water, some brandy, wax candles, and a fair proportion of Medical and sur-

gical stores, and followed close in the rear of the regiment till the men began to drop around us, chiefly with horrible wounds from cannon-shot, which the enemy fired with wonderful rapidity. We halted under a tree, the only shelter to be had, the country being a sandy plain, as level as a table, and the Hospital soon became a dreadful scene of mangled bodies. The men of the band brought in the wounded, and we were getting on well until a great misfortune befel us. I do not know, nor can I believe, that ours was the only field Hospital of the division, but certain it is, we were soon besieged by wounded from every corps. Cavalry and artillery came galloping in and carried of our doolies. When it was discovered we had water, there was an end to all order; we could only save one small vesselful by placing it in charge of a sentry with a loaded musket. When it became dark we lighted our candles, but had scarcely done so when an order came to put them out, or the Sikhs would be down upon us. Shortly afterwards we were ordered to join the regiment; but, in the dark, no one could tell where it was. It was said to be on our right, but, by sad mischance, we wandered down to the Sikh camp, when the enemy began to fire upon us. We all made off as fast as we could, the doolie-bearers throwing their loads, which ended our Hospital establishment. We could not, with our deficient means, carry off all the wounded from our field Hospital, and we saw many poor fellows lying near the entrenchments we could not remove.' (They were all murdered in cold blood.) A European force of 12,000 men, artillery, cavalry, and infantry, ought to have present on their first field of battle one Inspector-General of Hospitals, one Deputy, or two if the service is likely to continue, six Staff Surgeons, a Surgeon, and three Assistants to each regiment, and some six or more Staff Assistant-Surgeons unattached, to be employed as circumstances may require, and to fill up such vacancies as may unfortunately occur. This Staff is necessary, because British soldiers require from one-fourth to one-third more Medical men than any other soldiers in Europe. They are more prone to inflammation after wounds and operations; and it is known that, while natives of Portugal, Spain, and Hindostan can do comparatively without surgical care, the British soldier stands in need of constant and laborious attention. This is admitted by every Surgeon of the Indian service, and the practice of surgery is, therefore, essentially different with respect to European and native Indian troops. The British officers and soldiers wounded at Moodkee and Ferozeshah required more Medical men to do them substantial justice (according to those principles I have inculcated as resulting from the experience of the Peninsular war) than were present with the army; and if another battle, attended with similar results, had taken place within the first week, many of the wounded must have perished for want of surgical assistance. The Court of Directors, Her Majesty's Government, and the British nation, may, with great advantage, come to the conclusion, that, if a British force is to be employed in India, the Medical Staff ought to be complete, or the wounded soldier must be sacrificed in the hour of his distress. Eng-

land would have the melancholy satisfaction of knowing, if her sons had died after days of suffering and distress, that such suffering and distress were alleviated, as far as possible, by the kindness, the sufficiency, and the competency of the Medical Staff of the Army. The labour these officers have to undergo after a battle is not understood. If gentlemen in authority will be pleased to tie and untie their own shoestrings for half an hour, without lifting their feet from the ground, they will comprehend the difficulty the Surgeon will have to overcome, who is obliged to work in a nearly similar manner for the whole day and part of the night. Every badly-wounded soldier is lying on the ground, every manipulation to be gone through is more inconvenient than tying a shoestring, and human nature cannot sustain it beyond a reasonable point. That point passed, scientific surgery ceases to be attended to, and just as much is done, and no more can be done, than will satisfy the unfortunate soldiers that they are not neglected. They believe they are suffering from their own misfortunes, rather than from the parsimony of those who rule over their destinies. The real Medical duty of the Peninsular War was done by men much under 30 years of age. A regimental surgeon past 50 can rarely bend his back or kneel in the manner it is desirable a regimental Surgeon should do ; and an inspectorial officer much after sixty is almost always as inefficient before the enemy for everything like long-continued personal labour. There has been no use, neither can there be any, in teaching surgery to officers of the public service, if they are placed in situations in which they cannot practise it. It is just as useless to leave them records pointing out what they ought to do, but which precepts they are rendered incapable of carrying out. After the battle of Toulouse, with only 1,359 wounded men in hospital, officers included, the surgery of the army was as perfect as the then existing state of surgical knowledge permitted. After the battle of Waterloo nothing could be worse. It was impossible, during the first week, from the great number of wounded and the paucity of Medical men, to give them anything like proper attention. Assistant Staff-Surgeons, who had done their duty at Toulouse without a fault, were committing nothing but errors at Brussels. Their apology was their total inability to perform even one-half of the services demanded of them. All the wounded had a little attention, but few of the bad cases to that extent which was necessary for their safety, or consistent with the principles of surgery. It has been the same in India, and must always be so, until the regulations enforced by the Court of Directors are altered. The whole thing naturally reduces itself to this—that Great Britain may not go to war, unless she is willing to incur the expense necessary to secure for the wounded who have fought her battles good and sufficient Medical attendance. The Sikhs, after the battle of Ferozeshah, abandoned a part of their tents, their baggage, and their ammunition, that they might carry off their wounded, and even their dead,—thus proving that they are not wanting in humanity to their own people, although it is known that they

mercilessly cut the throats of many of the British wounded who had been left within their reach solely for want of the means of removal. The life of a wounded countryman is of some value to a Sikh." The results of the two systems of a complete and incomplete Medical Staff are well illustrated by the following passages:—"When the invalids from the first four battles in India arrived at Chatham, I wrote to the Medical officers in charge, requesting that they would examine in the most careful manner all those men who had been wounded through the chest. My astonishment was great to find that nine such cases only had arrived. It induced me to turn to the records of persons similarly wounded at Toulouse, and I find that after that battle 106 cases of wounds in the chest in officers and soldiers were admitted into the Hospitals of the town on the 12th, and that between that day and the 28th of June, 35 died, 14 were discharged to duty, and 57 were forwarded to England, few, or none, in all probability to return to the service. The number of wounded received into the Hospitals of Toulouse was 1,359, including 117 officers. If such great disparity took place in one class of injuries, what must have been the loss in others not less dangerous and requiring equal attention? The Medical staff present during the first week at Toulouse consisted of the Inspector-General, two Deputy-Inspectors, eight Staff-Surgeons, two Apothecaries, 18 Assistant Staff-Surgeons, and 23 Regimental Assistant-Surgeons, but not one Regimental Surgeon, they having all remained with their regiments; this number was augmented in the second week by two Staff-Surgeons, seven Assistant Staff-Surgeons, one Regimental Assistant-Surgeon, and four Apothecaries. The 10 Staff-Surgeons are dead; but there is not one of the 49 Assistant-Surgeons now living who will not declare, that from six in the morning until nine at night he laboured as hard as he had ever done before. The number of wounded of the Royal army, in the four great battles in India, amounted to three times that at Toulouse; the proportionate number of men shot through the chest and sent to England would be by computation 171 instead of 7, a difference which can only be accounted for by the fact, that the Inspector, the two Deputy-Inspectors, the eight Staff-Surgeons, and the eighteen Assistant Staff-Surgeons, were none of them to be found with the army on the Sutlej. The regimental medical staff were totally incapable of doing the duty required of them, and the medical department of the Indian army was even more inefficient in point of numbers. The same Herculean efforts were made by the Governor-General and the Commander-in-Chief to procure doctors as after the battle of Waterloo, and with a similar result. They came too late." We have had opportunity for knowing that the most complete arrangements had been made by the Director-General for the medical care of the troops; and that though Mr. Guthrie's letter has doubtless been useful in drawing the attention of the *public* to the subject, yet no necessity for it had arisen from any want of decision or energy on the part of the present Director-General."

The home Medical journals appear to be all at issue just now, and our old friend the *Lancet* would seem to be losing some of its popularity, as we observe that the Royal Medical and Chirurgical Society have carried a resolution expelling that long established periodical from its Library, "because its tendency was at variance with the objects for which the Society was established, those objects being the promotion of Science and to uphold the honor and dignity of the profession."

The following interesting description of the Danubian provinces from *la Gazette des Hopitaux* will repay perusal at the present moment:—

"Moldo-Wallachia, the seat of war between the Turks and the Russians, is situated in a sinus formed by the Carpathians and the Balkan, great mountain ranges which meet at the western zone, and leave this country widely open to the east and the south-east. The climate is peculiar. Although between the parallels 43° and 46° north latitude, heat and cold never attain their maximum but by an intermediate gradation, these provinces, so situated, know neither spring nor autumn, winter and summer succeeding one another in rapid and inappreciable transitions.

Towards the end of November, a sharp, dry, cutting wind, the "krivaz," blows from the north-east; under it the leaves die and fall in a few days; then there suddenly succeed hoar frost, falls of snow, and ice; in short, the winter has commenced. The cold continues throughout the season 20° to 25° R., about 40° below freezing of Fahr.

The spring commences in March with the south-east wind. Its appearance is so sudden, that in less than fifteen days, the trees charged with hoar-frost become covered with flower. During the summer, which comprises the months of May, June, July, August, and September, the heat is excessive, almost intolerable. From midday till three or four all work is suspended, and the inhabitants sleep or drink doultchaz, a mixture of cherry and water. After sunset the temperature falls 15° to 20°. The atmosphere is more refreshing, but it is charged with miasmata and humility. The autumn, a season as short as the spring, comes in with thick fogs and torrents of rain; a perfect cloud of water falls upon the earth; nevertheless, about midday the sky becomes clear and the sun shines.

The plain of Moldo-Wallachia is most productive; a thick layer of humus lies upon a sandy, calcareous, or clay substratum. Here and there are marshy districts in which feed troops of buffaloes.

The mountains are formed of gypsum, red sandstone, grit, and marble. In some, the Sakoiéni, the Gorge, the Meutchélon, there are inexhaustible mineral riches. Pit coal, slate, black agate, iron, lead, copper, manganese, tin, mercury, silver, gold, are found at every step; and, wonderful to say, the natives live among such riches without exerting themselves to derive profit from them.

Multitudes of fine rivers flow from the mountains to the Danube, which, when the snows melt, overflows its banks and deposits a thick and prolific sediment. Every kind of grain and fruit is produced in abundance; potatoes, wheat, etc. etc.; ananas; the vine grows in the open air, and produces a strong wine. The ox, the goat, the pig, Abyssinian sheep, the buffalo, and every kind of game and wild bird are in abundance, and thrive greatly.

The Moldo-Wallachian peasent is a pattern of sobriety. The Boyards, however, enjoy better fare and live more freely. The towns are ill-built. Even in Bucharest, Giurgevo, Orsova, and Galatz, the streets are narrow, sinuous, humid, and dark, and the passenger walks in a sea of mud. Jassy is the only town which possesses a pavement and lamps.

The population amounts to not more than 3,200,000 inhabitants, exclusive of 150,000 Zigans (Bohemians). There are certain districts which are very unhealthy, such as about Galatz, Matchini, Hirsova, and Ismail. In spring, after the subsidence of the waters, with the first rains, there appear dangerous intermittent fevers and dysentery; and among the inhabitants of the plains, anasarca, swollen abdomen, enlarged spleen, and precocious senility, are common occurrences. But in consequence of the general abstemious mode of living, gout, gravel, and pneumonia are almost unknown. The plague has made many irruptions from Constantinople, and there is a regular quarantine of 4 to 20 days, according to season, established along the Danube. The intermittent fevers yield to quinine, but the natives have a faith in charms and amulets, etc.—*Gazette des Hôpitaux*, Feb. 21, 1854."

Original Communications.

TETANUS.

Ramasawmy, æt. 30, Pariah Labourer.

Admitted 3d March 1854. A tall spare-made man admitted this evening, complaining of pain in the jaws and unable to open his mouth. Feels a stiffness about the neck and chest, unable to bend the body in any direction: states that, about 12 days ago, he fell down and hurt the little toe of the left foot which is now an open sore, and about 2 days ago he was suddenly seized with giddiness, pain about the jaws and stiffness on the neck and back, bowels regular, pulse small and quick.

14th. Træ canabis ʒi mist. camph. ʒi every 2d hour.

℞ Calomel gr. ij; op. gr. ½ m f piü every 2d hour.

Chloroform liniment to spine solution of opium and poultice to toe.

4th. Slept well, is able to open his mouth better, muscles of the abdomen rigid; but no pain in any part of the body, bowels not opened during the night p. 60.

℞. pul. jalap co. ʒi

Calomel gr. v m stat. sumend.

Cont. sol. and poultice to toe.

Cont. liniment.

Vesp. ℞ calomel gr. ij ext. cannabis gr. ij.
Opii gr. ½ camph. gr. ½ m f. pil every 2d hour.

5th. Feels pain and stiffness all over the body, the muscles of the trunk are rigid, bowels open twice yesterday, slept well during the night, convulsions not so strong, able to open his mouth better, had 4 pills during the night.

Cont. pills.

6th. Muscles of the abdomen not so rigid, complains of pain about the jaws. Is not able to open his mouth so wide as yesterday. In other respects feels better, bowels opened freely, wound looking clean.

Cont. pills.

Chloroform liniment to jaws.

7th. Spasms of the trunk not so severe, those of the jaws continue much the same, bowels freely moved, gums tender, in other respects much the same.

To have ice along the spine.

Cont. pills.

8th. Immediately after applying ice to the spine complained of severe pain about the throat and chest which gradually left him. Feels a little better this morning, bowels opened, slept well during the night, no spasms during the night.

Omit calomel cont. pills.

Ice to spine.

9th. Spasms not so strong, and less frequent, slept well during the night, feels better, and opens his mouth better, bowels opened, pulse quick and full, gums tender.

Cont. Medicine and Ice.

Alum gargle.

10th. Slept well, no return of spasms, opens his mouth more freely, bowels opened.

Cont. medicine and ice.

11th. Gradually improving, slept well.

Cont. med.

13th. Continues much the same.

Cont. Medicine.

14th. Mouth still a little tender, in other respects doing well.

Omit Medicine.

℞. Inf. cherettæ ℥jss.

Acid. nitric. dil. ♏ xv—ter in die.

16th. Quite well.

HÆMORRHOIS.

Savaputhy. æt 40, Malab.

Attended at the Vepery Dispensary as an out patient on the 9th March, for hæmorrhoids, which he has had for several months. On examination I found two large protuberances about the size of a pigeon's egg situated on the verge of the anus. I gave him pil rhei co. g. x to be taken at bed time and a dose of oil in the morning, so that the piles may come down freely. On the following morning, I applied the nitric acid freely to the part by means of a dossil of lint wrapped round a stick, I had some liq. potassœ in readiness if required, and touching the parts first applying a little oil around the piles to protect the sound parts from the nitric acid. The application of the acid did not cause much pain. Next morning the piles looked hardened as if blood had been coagulated, the acid was again applied, and continued the application daily for 12 days, the piles gradually absorbed and the man is now quite well.

J. W. Barrow.

To the Editor of the Madras Journal of Medical Science.

Sir,—I have been kindly favored with the following communication from a Medical Officer, and as the subject is one of such general interest I do myself the pleasure of forwarding it to you for publication, and shall feel obliged by your giving it a place in your next issue.

"Pressure—novel application of"

"Experience teaches us, that no remedy causes absorption of abnormal deposits, so quickly as pressure, properly applied. Allow me to bring to your notice a plan which originated, as far

as I know, with the Native practitioners of India, and which I think may be extensively useful, and therefore deserving a place in your journal. In it, advantage is taken of the fact, that heat and moisture cause seeds to germinate and swell. It is more particularly applicable to the joints of the extremities. Suppose inflammation to have left, a good deal of thickening, of the structures surrounding the knee or ankle for instance, causing not only deformity but interfering in some measure with freedom of movement of the joint, in the former case a sock, in the latter the upper portion of a stocking may be placed on the joint and filled with a smooth grain (common gram answers the purpose very well). Over the stocking or sock a bandage should be placed so as to confine the grain, and prevent too easy distension, the whole should be wetted twice or three times daily with cold water, and as the grain gradually swells pressure is made equally and over every portion, so as quickly to reduce the swelling. The selection of cases fit for this treatment, and the time which should be allowed before the removal of pressure, must be left to individual judgments."

This novel application of pressure is certainly worth a trial, especially as the method is so simple and feasible, and when we consider how inefficient such remedies as iodine, mercurial ointment &c., have too often proved in discussing old swellings, I make no doubt but that advantage will be taken of this plan. I have not yet had an opportunity of witnessing its efficacy myself and therefore cannot speak it of it from actual experience, but I trust that ere long you will receive further communications on the subject, if not from me, from some one who may have an opportunity of trying it.

There is one other lesson that this article teaches viz. that we are not to despise Native practice, on the contrary if we would but watch it attentively we shall derive many useful hints from it. I have often been struck at the success with which many diseases, even of the gravest character, are treated by the Native doctors, ignorant as they are of even the principles of anatomy, physiology, or therapeutics.

I am,

Dear Mr. Editor,

Your's faithfully,

ALEXANDER BOGG.

SECUNDERABAD,
24th March 1854.

THE
MADRAS JOURNAL
OF
MEDICAL SCIENCE.

"I hold every man a debtor to his profession from the which as men doe seek to receive countenance and profit, so ought they of duty to endeavour themselves by way of amends to be a help thereunto."—Lord Bacon.

Original Communications.

ASTHMA.

Yagatha, æt. 25. Sex Female, Housesweeper.

Was just brought into Hospital with a violent paroxysm of Dyspnœa, patient gasping for breath, countenance ghastly, pulse weak. Bowels constipated, states that she has been subject to the disease for the last month,—apparently a healthy looking young woman; being unable to swallow from distressing orthopinœa; ½ a drachm of chloroform was applied to her nostrils for a while and ½ a drachm rubbed externally on the chest which partially relieved the breathing and enabled her to swallow an emetic. ℞ Pulv. Ipecac. ℈i Stat. Sum.

12 Noon.—The Ipecacuanhæ Emetic did not operate; continues unrelieved.

℞ Mustard ℥ss. Stat. Sum.

21st.—Vomited and purged freely—appears relieved, there still continues some dyspnœa—bowels opened.

Apply Empl. Lyttœ to chest.
℞ Morph. Aced. gr. i.
Ext. Hyoscy ℥ss.

Vin. Ipecac. ʒiv.
Mucilagea ʒvi mft. ½ ʒ every 4th hour.

Vespere—The medicine produced no effect, and the dyspnœa continues unsettled.

℞ Æther Sulph. ʒi.
Spts. Am. Arom. ʒi.
Tr. Cannah. ʒi.
Mist. Camph. ʒi. to be taken in 2 doses.

22d—Continues unrelieved, head somewhat affected, dyspnœa very great, amounting to orthopnœa at times, no sleep, pulse small, bowels confined.

℞ Ol Ricini. ʒj. st. post oper.
℞ Tr. Cannah. ♏xl.
Mist. Camph. ʒi ter in die.

24th.—Obtained no relief altho' the breathing is somewhat easier, pulse small, skin cold and perspiring, no sleep, bowels open.

℞ Tinct. Lob. Inf. ♏xv.
Tr. Camph. co. ♏xv.
Inf. Cherrytiœ.
Mist. Camph. *a a* ʒss. every 3d hour.

25th.—Continued to suffer and expired suddenly at 2 P. M. yesterday.

Sectio Cadaveris—18 hours after death—external appearance, body moderately plump, skin clean with ¼ an inch of subcutaneous fat. On opening the chest the lungs were found adherent by fibrinous bands to the sides and posterior part of the thorax, to the strenum in front, and diaphragm below. The superior lobe of the right lung had formed into a fibrinous tumour the size of a man's fist and found compressing; the Trachea from 2 inches above the bifurcation to 2 inches below, towards the right bronchus, making 4 inches in length and 3 in circumference, on the anterior part, were imbedded the arteria innominata about an inch of the right carotid and

subclavian arteries, and the pneumogastric nerve ;—The lungs themselves were interspersed with tubercles varying in size from a pin's head to a pigeon's egg—at the root of the left lung was found a carbonaceous tubercle much larger than any of the others. The mucous membrane of trachea and larynx were slightly congested. On opening the pericardium there was only about ½ an ounce of Liqr. Pericardii. Heart of natural size and free from disease. The other viscera were healthy.

Remarks.—This case is not devoid of interest as the patient continued unrelieved and in the greatest agony imaginable from the time of admission to that of death with but very slight remission if any, from treatment. I was not surprised on discovering the immediate cause of death, for a cure under such circumstances was beyond the reach of art. Perhaps the necessity of Postmortem examination in all cases cannot be too deeply impressed in the minds of Medical men in general when it can be carried out. In the case under consideration the patient died asphyxiated from the mechanical compression produced by the tumor on the trachea, giving rise to death from the lungs but there are other modes of death in operation at the same time. The tumour not only compresses the trachea and produces asphyxia but likewise contracts the larger vessels of the neck from these being embedded in it thus cutting off the supply of arterial blood to, and the return of venous blood from the brain while at the same time it compresses the pneumogastric nerve and thus arrests respiration;—in the meantime while presenting a mechanical obstacle to the entrance and exit of air to, and from the lungs, two distinct processes of death were at work at the same time death beginning at the lungs and death beginning at the brain ; and it may be said that in each of these cases there were two processes taking place, viz., poisoning of the nervous system by the presence of venous blood, and poisoning of the system by the air loaded with carbonic acid and the want of atmospheric air, containing a sufficiency of oxygen for the purification of the system. To make no mention of the derangement both these organs must suffer from mechanical com-

pression. In addition to these the heart's action is arrested from the mechanical impediment to the egress of blood from the great vessels immediately arising from it and the formation of respiration is further brought to a stand by the compression of the pneumogastric nerve. The growth of the tumor must have been gradual for the patient only complained of being ill for the last month and from the statement of herself and friends it would appear the symptoms daily increased in severity, yet she does not seem to have suffered in her general health for she had a robust and healthy appearance.

ALBUMENURIA.

PHLEGMATIC TEMPERAMENT.

M. *Æt.* 55—*Male.*—Was asked to see the patient this morning, I found him to be a man on the decline of life, emaciated, his complexion pasty and of a sallow hue. He complained of general debility and loss of appetite, with nausea vomiting and a distressing itchiness of the Skin. Bowels, obstinately costive has fœtid eructation—Pulse full and soft, tongue loaded, skin cool and dry. States that 9 months ago he began to lose health, became weak, lost appetite, and his extremities swelled; he took some native remedies and obtained relief remaining however still weakly, and continued in this state until November, when the symptoms enumerated above made their appearance.

1st. Vomiting very distressing occurring sometimes immediately after a meal, sometimes an hour after; headache, giddiness and drowsiness at times, fancies, an ammoniacal smells; has a saltish taste with an occasional flow of glairy saliva; slight swelling of inferior palpebræ; face somewhat bloated; skin dry and rough; bowels still very sluggish; urine pale and limped, quantity 12oz. Sp. gr. 10 10. On examination it was found to contain a large quantity of albumen.

15th continues much the same as at last report, vomiting not so frequent. Is daily loosing flesh and strength, distressed with

the sensation of a full bladder, with constant desire to micturate and this is attended with impediment only 8 oz. of urine passed during the 24 hours having nearly equal parts of albumen and fluid.

30th. No improvement, increasing giddiness and drowsiness; urine less in quantity oz. 4 and voided with much difficulty; the same quantity of albumen exists, vomitting and hiccough continued. No pain or uneasiness in lumbar region, Pulse small and weak.

1st. Becoming more drowsy, only sensible when roused and spoken to, replies but relapses, immediately after. He continues in this state until midday, becoming comatose and expired at 6 P. M. Treatment. Oleaginous and drastic Purgatives; stimulating diuretics and diaphorctics; anodynes and Sedatives. Tonics, antacids and warmbaths. Purgative, Enemata and counter irritation to the epigastrium.

POST MORTEM EXAMINATION.

Abdomen. The Kidneys were deeply imbedded in fat; length 4 inches, breadth $\frac{1}{2}$, and thickness $\frac{5}{4}$ inch. *External substance*—flat and flabby, to the feel with irregular vascular congestions and a mottled appearance, the capsule was scarcely discernable having wasted away. Under the microscope white granular deposits were seen interspersed when the tonic was detached. *Internal Surface.*—The vessels were much enlarged, the medullary portion dense, no tubuli urineferi could be seen; ureters dilated.

APHORISMS ON MIDWIFERY AS GIVEN BY PROFESSOR J. SHAW, IN THE MADRAS MEDICAL COLLEGE.

Section I.

Mechanism of Natural Labor.

1. Labor is the action of the uterus to expel its contents, when the fœtus is sufficiently mature to sustain respiration.

2. Labor is called Natural, if the head of the child presents; if the labor is completed in twenty-four hours, and if artificial assistance is not required.

3. Labor may be divided into three stages;—the 1st Stage is dated from the opening of the os uteri to its complete dilatation. The 2d Stage commences when the os uteri is perfectly dilated and terminates in the expulsion of the child. The 3d stage is occupied with the expulsion of the placenta.

4. The dilatation of the mouth of the uterus (the first stage) is effected chiefly by the muscular fibres of the fundus, acting upon it, through the medium of the Liquor Amnii, which conveys accurately to the os Tincæ the whole power of the uterus; moderates and equalizes the force employed and dilates the mouth of the uterus, without exciting irritation. The pains caused by this action are called *grinding* or *dilating* pains.

5. The order of uterine action is from the fundus to the mouth of the uterus.

6. When the os Tincæ offers any abnormal resistance to the fundus, the force of the fundus is not increased, the action is frequently renewed, and may be for a time suspended in order to diminish irritation, so that the object of nature is to accomplish her purpose by time rather than by force.

7. When the dilatation of the uterus is completed, the second stage of labor begins. There is then a marked difference in the uterine contraction; not only is the entire force of the uterus employed, but it is aided by the muscles that bound the abdominal cavity. The pains that accompany this action are called *bearing* or *expulsive* pains.

8. The manner in which the head passes through the pelvis in its most usual position, is as follows:

1st—When the head is above the brim of the pelvis, the forehead and the occiput are nearly on the same level, but when the head enters the brim, the occiput descends lower

than the sinciput and glides a certain distance along the plane of the ischium, against which it rests. The forehead then advances more rapidly at the opposite side of the pelvis, until it is arrested by the convergance of the ischium and the shorter sacro-ischiatic ligament. The occiput then again descends obliquely along the ischio-pubic ramus and emerges with part of the parietal bone beneath the pubic arch. 2nd, simultaneously with this motion there is a very slight rotation on the longitudinal axis of the head, by which that side of the head which is next the pubis descends lower than that near the sacrum so that the parietal protuberance of the pubic side becomes the presenting part. 3rd. As the head is advancing through the pubic cavity, the shape of the pelvis obliges it to pass in a spiral direction, hence the head which may enter the pelvis in the oblique or transverse measurement is turned as it descends towards the conjugate axis. 4th. When the head escapes from the outlet, the occuput rests against the ramus of the pubis and ischium and becomes a fixed point round which the remaining portion of the head successively passes out. In some instances the occiput rests directly against the arch of the pubis and the head is expelled in the conjugate axis. According to the more usual course it passes out obliquely.

9. There are generally four positions of the head in which the partial bone presents. 1st. Left Occipito—Cotyloid. 2d. Right Occipito—Cotyloid. 3rd. Left Fronto,—Cotyloid. 4th. Right Fronto, Cotyloid.—Two positions in which the face presents. 1st. Right Mento, Cotyloid; and 2nd, Left Mento—Cotyloid.

10. The four positions of the vertex may be known by the anterior and posterior fontanelles, and by the ear.

11. When the head begins to press on the perinæum the mucous secretion is increased in the vagina, the head advances and retires with the pains for some time until the perinæum is sufficiently stretched. The pains then become

more powerful and force the head through the Vulva; there is then the greatest danger, lest the perinæum be lacerated.

12. When the head is expelled the face turns towards the right thigh in the first position; towards the left thigh in the second position; in the latter case, the arms frequently lacerate the perinæum.

13. As soon as the expulsion of the child is accomplished, the uterus ceases to contract for sometime the intervals varying from 5 to 15 minutes; then the contractions are renewed for the expulsion of the Placenta. This constitutes the third stage of Labor.

14. If the Abdominal muscles contract sufficiently or if artificial support be given to the fundus during the contraction of the uterus to expel the child, the Placenta is generally separated at the same time and may be expelled from the vulva or into vagina.

15. If the uterus be without support, the Placenta may be retained either from deficient irritation or irregular contraction. Hœmorrhage does not usually accompany retention caused in this way.

Section II.

Management of Natural Labor.

16. The *shew* is a slight sanguinous discharge arising from the ruptured vessels of the mouth of the uterus when it first dilates. As soon as this takes place, labor properly begins. The patient has now entered upon the first stage.

17. When called upon to attend a patient, the *summons should be instantly responded to.* Your introduction should not be abrupt and if called to a patient for the first time still greater caution should be exercised.

18. During the early part of the first stage it is not necessary nor advisable to remain in the room with your patient. It will be sufficient to remain in the adjoining room, until there is occasion to make a Surgical examination.

19. When the pains have continued for some time regular and frequent, an examination may then be made. The patient loosely attired in her night dress, should lie on the bed on her left side as near to the edge as possible, having the knees drawn up towards the abdomen. You should then wait until the pain returns and when it is about to cease pass the fore-finger of the right hand anointed with cold-cream or any unctuous substance within the vagina. Examine the rectum through the posterior wall and fundus of the bladder through the anterior. Introduce the middle finger in order to examine the os uteri. Pass both fingers along the sacral side of the vagina and when you cannot advance them further, direct them forwards towards the pelvis, you then feel what seems to be the irregular holes of a flaccid bag projecting with the vagina; examining this with caution, the edge of the os uteri may be traced, if the finger be passed within it, you will sometimes feel the head; you may often fail and yet the head presents. The dilatability of the os uteri, its direction and the degree to which it is opened should be ascertained.

20. If the membranes are ruptured early, an examination should always be made, lest the funis or shoulder present. Before the fingers are withdrawn from the neighbourhood of the os uteri examine the distance of the sacrum, and as they are being withdrawn ascertain if possible the *space* in the *pelvic cavity*.

21. In order to make a sufficiently careful examination, a little time may be required during which the pains may return, you should then cease until they subside, noting only those points which have been mentioned; but make it a rule not to withdraw from your examination until you have perfectly satisfied yourself as to the character of the labor. Having accomplished this a second examination during this stage, unless it is prolonged, would be unnecessary.

22. The first stage of labor is not always completed before the second begins; the grinding pains merge with the bearing, so

gradually as to require some attention to observe the change. When the bearing pains come on, the patient is obliged to grasp firmly whatever is within her reach. She retains her breath more than before and sometimes makes an involuntary effort to bear down. Her voice also alters, its tone is more subdued and she seems more patient of her sufferings than before. Sometimes the complete dilatation of the os uteri is marked by constitutional symptoms; there may be slight rigor or vomiting, perhaps a strong inclination to go to stool.

23. The patient should now remain in bed which should properly be prepared for her reception. A skin of Morocco leather or a broad piece of Indian rubber cloth must be placed next the bed to protect it from being stained and a blanket folded very wide and enclosed in a soiled sheet placed underneath the hip of the patient as she lies upon her left side; they should be so fastened together that the whole may be removed at once.

24. When the bearing pains become decided, a sheet should be fastened to the bed-post and so within reach of the patient that she may grasp it firmly, the nurse should support her heels by pressing a pillow against them. Small pillows between the knees are very inconvenient.

25. During the second stage the patient often becomes fatigued and thirsty, you must imperatively forbid heating drinks of all kinds to be given to the patient. A free ventilation of the apartment should be secured and as few persons as possible permitted to remain in the room.

26. In the second stage of Labor, even then an examination is necessary; but if examinations are repeated too often, the passages become dry and irritated. The *first object* of the examination is to determine the proportion between the head and the pelvis; the *second object* is to ascertain the exact position of the head, and the *third object* is to note the progress made by the head.

27. In order 1st to determine the proportion between the head and the pelvis, the fingers should be passed in the intervals of the pains, between the pubis and the head and moved round on either side, the ear can be felt if there be sufficient space for the head to pass, but if the head be high up in the pelvis, the fingers can only touch it. If the ear cannot be reached and there seems to be a disproportion, its degree may be felt by feeling the scalp. When the head is only slightly compressed the scalp is simply folded or puckered by the closing of the sutures; as the compression increases, these folds merge into one, which ultimately forms a distinct tumor. This continues to enlarge, so that in cases of inpaction of the head it is sometimes of great magnitude.

28. To ascertain the exact position of the head, pass the finger to the sagittal suture. This traverses the presenting part of the head and looks towards the sacrum, direct it along this suture towards the Left obturator space and plane of the Ischium, a fontanelle will then be felt, if it be the posterior, a small triangular space (or a point where three sutures meet) it is the *first* position. If it be the anterior fontanelle a large membranous space bounded by four sides undefined, it is the *third* position. When the fontanelle is in the right side of the pelvis, the 2nd position may be distinguished from the 4th in the same manner.

29. If there be a doubt of, or difficulty in feeling the fontanelle, the ear will determine the side of the pelvis to which the occiput is applied, the lobe of the ear being felt on the corresponding side.

30. You must be prepared to support the perinæum, the moment it suffers any degree of distension. Sit behind the patient as she lies upon her left side, the back of the chair being towards the head of the bed, and while the head of the child is passing, through the pelvic cavity *press moderately with the left hand* over the hip of the patient. With the right hand support the perinæum. A single fold of a fine napkin

should be placed along the edge of the perinæum, and the right hand so applied, that the fold of the skin between the fore-finger and thumb should correspond to it; the fore-finger and thumb passing on either side of the vulva, and the palm of the hand resting against a thicker fold of the napkin applied to the posterior part of the perinæum.

31. The perinæum *should not* be *pressed* against too soon: rather wait till you feel the head protrude with each pain through the vulva. The pains are very unequal, and the object of being prepared to support the perinæum early is to resist too violent distension by them. Support the perinæum against the powerful pains. It is not necessary to press strongly when the pains are weak.

32. When the head is passing the vulva, do not draw the perinæum backwards, nor push the head too rapidly forwards. In either case the widest part of the head would be forced too soon over the perinæum. When the head is delivered examine carefully lest the funis be coiled around the neck. If it be a single coil it is sufficient to draw down more of the funis and loosen it; if two or more, one must be brought over the head,—when this cannot be done, the funis must be divided, which should never be done if it be possible to avoid it.

33. When the shoulders are passing the perinæum, caution must be used, lest the arms should lacerate it, especially in 2d positions of the head. Sometimes the shoulders require to be assisted, which may be done by placing the forefinger of the right hand within the axilla of the child's arm on the pubic side and guarding the perinæum carefully with the Left hand.

34. As soon as the shoulders and thorax of the child are delivered, it can respire and is far beyond danger, no haste should therefore be used in extracting the body and lower limbs, it is preferable to allow the uterus gradually to expel them, and while it is doing so, the left hand should be immediately ap-

plied over the fundus, in order to maintain a moderate pressure on the uterus while it is descending towards the pelvis.

35. Pressure should be maintained either by a temporary bandage or by the hand of an assistant and the funis tied and divided. Apply a strong ligature of house-wife's thread, bobbin, or narrow tape, about two inches from the umbilicus and a second about one inch further. You must be careful to see the part of the funis you are dividing, lest the fingers or any part of the child should be in your way, and also to examine the cut surface of the umbilical portion. The blood should be squeezed out of the vessels and the surface wiped with a napkin, for the purpose of detecting any oozing of hæmorrhage that might take place, if the funis were not properly tied.

36. The binder may be applied to the fundus, and a very moderate pressure is often sufficient to expel the Placenta completely out of the Vagina; but if not, it can be drawn out by the funis quite easily, directing the traction in the axis of the vagina. But if the uterus should not obey the stimulus at first do not persevere, it is always more advisable to wait for some time than to use too much irritation. Neither should you attempt to remove the Placenta by the funis alone.

37. After delivery, a bandage is necessary to support the Pelvis by compressing it as much as possible; and support the uterus by moderate and equal pressure over the whole abdomen. The bandage should be rather more than a yard long and half a yard wide. It should first be drawn evenly over the pelvis: its lower edge when so placed being about an inch below the trochanter; the margin should be drawn as tightly as the patient will bear and pinned securely below the right trochanter; the bandage should again be drawn, and pinned in a similar manner across the crest of the Ileum so that the pelvis may be embraced by this portion of the bandage, about three inches in width, as tightly as possible.

The remainder of the bandage should be drawn and pinned with moderate tightness but equally from the pelvis to the diaphragm, so that the whole abdomen be included in it, without projecting over the bandage.

38. When the bandage is applied, the folded sheet had been placed under your patient during labour, should be removed, and replaced by others dry and warm, in order that she may be induced to sleep; she must not be disturbed afterwards.

39. If the placenta be not separated in the first instance, wait for an hour, and again by pressure, excite the action of the fundus. This should be brought as nearly as possible towards the centre of the pelvis, and grasped firmly by both hands. As soon as the fundus becomes hard, strong pressure upon it is generally sufficient to cause the expulsion of the placenta: if it should not, do not use any violence, rather let the nurse under your directions maintain the fundus in the same position, while you pass your fingers, and if necessary your hand in the vagina, in order the stimulate the uterus to contraction.

40. In order to remove the placenta, the funis should be held firmly in the left hand and the fingers of the right, passed along it within the vagina, sometimes this alone excites contraction, but if not all the fingers in a conical form, may be introduced within it as far as the os uteri. You will find a large portion lying at the upper part of the vagina, you may even feel the insertion of the funis, but do attempt to withdraw it: pass the hand still towards the os uteri, and by irritating it, the portion of the placenta that lies within the cervix is often detached. If this be not sufficient, withdrawing the hand along the vagina for a short distance will excite contraction; but when both means fail, the fingers must be introduced within the os uteri, when the upper part of the placenta may be grasped, and the whole removed. The assistant should press upon the fundus while the hand is being withdrawn. The placenta should never be drawn away by the lower portion.

MADRAS JOURNAL OF MEDICAL SCIENCE.

JUNE, 1854.

THE faculty, both in Bengal and in England, are now employing Nitrate of Silver, or Lunar Caustic, seemingly with much success, in the treatment of Indian Cholera. This remedy was first tried by Dr. Moore, of the Bengal Medical Establishment, so far back as 1845, in Cholera of the worst type and severest form met with in Indian villages, with results such as he had never witnessed from the use of other medicines; and further since 1845, he has prescribed lunar caustic, not only in cholera, but in dysentery, diarrhœa, and every form of serous, mucous, and sanguineous discharge from the bowels: so that Dr. Moore may very reasonably lay claim to having originated the practice.

Drs. Garlicke and Ross, in 1849, according to the statement of Dr. Moore, combined lunar caustic with opium in the treatment of cholera in England, and their testimony is corroborative of the value of this medicine. But Dr. Moore prefers lunar caustic without any combination; and in addition to that prescribed in pills, an enema containing five (5) grains dissolved in a pint of cold water, has generally been attended with beneficial results. The patients are allowed to drink as much cold (or iced water if it can be had) as they like.

The second number of the *Indian Annals of Medical Science*, a very able and excellent periodical, contains an interesting article by Dr. Barry, of the Bengal Army on the treatment of epidemic cholera in Assam, which is sure to attract the attention of the Medical profession in this country to the value of lunar caustic in the treatment of the disease.

The Doctor has little doubt " that eventually medical practitioners will admit that lunar caustic is *the* remedial agent on which reliance can be best placed in combating, with any chance of success, cholera in its 1st stage, cholera in its 2nd stage, or cholera in its 3d stage; and that eventually, lunar caustic will form the basis of an uniform system of treatment in Cholera wherever the disease may rage as an epidemic."

Dr. Barry, states that:—" The cases treated simply by Nitrate of Silver were not in any way selected, but taken promiscuously, as they appeared. The experiment was a very fair, unbiassed one, and yielded gratifying results, so far as it went; but whether the success is under, or above, the standard attained to by Dr. Moore, of Upper India, I know not, as I have not yet seen his work, or learned the results of his practice."

Dr. Moore in referring to the foregoing article observes that " Every opinion," " bearing on the success of lunar caustic, not as a specific, but as a remedial agent in the treatment of cholera, is valuable; and every case of Indian cholera, in which the effects of this medicine have been fairly tested, carefully watched, and duly recorded, is a valuable addition to Medical Science."

Furthermore, says Dr. Moore, " Government officials residing in districts where medical advice cannot be had, may save many lives from the effects of cholera, dysentery, and diarrhœa, by the timely administration of a few pills, prepared as directed in the following Formula:—a rhubarb draught, or dose of castor oil, may be given forty-eight or seventy-two hours after the pills":—

" Formula: Take of Lunar Caustic ten (10) grains, water 6 drops, atta or flour as much as will make a mass. To be divided into ten (10) pills. One pill to be given every hour with copious draughts of iced water, until the vomiting and purging are checked; to be continued afterwards at intervals of three and four hours according to circumstances."

The *Englishman* states that "the Council of Education applied to Government relating to the increase recommended by them in the stipends of the students of the Medical College. The Council says, they have recently resolved to raise the standard of qualifications necessary to entitle the pupils of the Medical College to the stipends allowed by the Government. There are fifty stipends in number, of the value of eight rupees each, but in order to induce candidates of really respectable qualifications to come forward, and to make the stipends partake of the nature of rewards for distinguished attainments, it has been resolved to increase them to twelve and sixteen rupees each. To enable the Council to carry out this plan, keeping the annual amount sanctioned on this account within the authorized limits, the Council have determined upon diminishing the number of the stipends, and resolving them into stipends of the above amount whenever by resignation, lapse or forfeiture, a sufficient number becomes vacant. At the conclusion of the last session of the Medical College, fifteen of these stipends of the monthly value of Rs. 120 became so disposeable, and were broken up, and made into ten stipends of 12 Rs. each.

The proposal of the Council has been approved of by the Lieutenant Governor."

A Parliamentary Return gives the statistics of the Medical profession in England, Scotland, and the Islands in the British Seas, as supplied by the census of 1851. The results are:—

"Physicians, 2,328; surgeons or apothecaries, 15,162; druggists, 15,325; dentists, 1,167; aurists, 4; oculists, 14. Of the druggists, 3,630 were under twenty years of age. A few of the physicians and surgeons had reached long ages; 9 of the former and 29 of the latter being 'eighty-five and upwards.' The large proportion were between thirty-five and forty years of age. In London alone, there were 552 physicians, 3,407

surgeons or apothecaries, 2,670 druggists, 503 dentists, 9 oculists."

The Calcutta *Englishman* hears that "the system of paying stipends to the students of the English class of the Medical College has been abolished. Those who have such allowances will continue to receive them until they obtain diplomas and leave the College, but new-comers will have no stipends allowed them. To reward merit scholarships and prizes will be given in future."

The same journal also understands that the "Sub-Assistant Surgeons of this Presidency* propose to call a Meeting of their body at the Medical College for the purpose of memorializing the Government for the grant of pensions when worn out in its service. They contend that the indulgence under recent orders from the Court has been extended to the education service, and they are aware of no reason why they should be denied it, since they likewise are servants of the State. The Meeting intends also to complain against the system of Supernumerary Sub-Assistant-Surgeons, in order to its abolition. A supernumerary is obliged to go to the most distant parts of the country on half pay, and to enter into active service, so long therefore as Supernumeraries can be had upon half pay. Government need not require the services of Sub-Assistant-Surgeons upon full pay, and the services is thus made to serve the Government upon allowances extremely inadequate to their wants or expectations. They would rather remain at home without any pay than go to places at such distance from their homes as Lahore, Delhi, &c. on half pay only."

We in last number noticed the miserably deficient manner in

* Bengal.

which Admiral Napier's fleet had been sent to sea, as deficient both in the number and standard of qualification of its junior Medical Officers. Yet badly off as is the Baltic fleet in this respect, it would seem, from the subjoined extract from an English Military Journal, that our Naval force in the Black Sea, is in no better condition, as our cotemporary's correspondent states that :—

"The *Queen* has only two instead of three Assistant Surgeons; the *Trafalgar* is similarly circumstanced : the *Arethusa* has had only one Assistant Surgeon for the last three months, her senior one being lent to do duty at the sick quarters at Therapia. The *Wasp* has been without an Assistant Surgeon for nine months, the Officer appointed to her having been for that length of time on board the *Ardent*. The only Supernumerary on the station is doing duty in the *Banshee*, vice Chapman, in Hospital.

The Admiral has applied for some Assistant Surgeons to be sent out, and the answer is they are unable to comply with his request. If any engagement takes place, will it not be humiliating to apply to our ally, the French, for medical assistance? Why not send out some of the unemployed Surgeons? Is the Seaman's life of such little value that the contingencies of a Naval engagement are not to be provided for?"

Thus as thoroughly qualified Asst. Surgeons are not obtainable for the Royal Navy the Admiralty have, it is said, found it necessary to establish a new class of Medical Officers, in order to provide additional medical assistance of some sort for the Navy, and thus have consented to accept the services of young men wanting two years of completing their apprenticeship, as Dispensers, at a salary of 100*l.* per annum. It certainly is extremely discreditable to the Admiralty authorities to have allowed the Medical Department of the Royal Navy to become so unpopular, that properly qualified Assistant Surgeons are no longer obtainable. Thus at the commencement of an arduous war it is found necessary to confide the lives of our gallant sailors to half

educated youths, who may, or may not, be competent to the duties entrusted to them."

We publish in this number the happy effects of the "Hydrocotyle" in Leprosy, from the *Lancet* of the 22d April 1854, and would be glad to receive the notes of any cases treated by our Subscribers. We have seen innumerable cases of this disease; at Vizagapatam, in fact, almost in every street numbers of cases were to be seen. If the drug could be had there, we feel certain that there would not be cases wanting to try its effects. We give this hint to our Vizag brethren, and hope to be able to publish some cases shortly.

By the statistics of Midwifery it appears from Collins' tables that of 240 cases of twin-births, while 72 occurred in first, and the remainder in subsequent pregnancies, the frequency of their occurrence decreasing in proportion to the number of the previous pregnancies:

Number of pregnancy, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13.
Number of Women, 72, 35, 37, 20, 22, 15, 15, 6, 6, 7, 1, 1, 1.
It would thus seem that the formative power becomes weakened proportionately as it has been frequently called in action.

A new description of Vaccination has lately been invented by Professor Dryer of Copenhagen and presented thro' Dr. Marcus, a Surgeon in the Danish Navy to Dr. J. Struthers. In form it is said to resemble the iron pen, with two legs and screw for regulating their distance, commonly contained in cases of philosophical instruments; but the extremities of the legs, instead of being pointed, are broad and sharp, similar to those of the double knife of Valentin. The advantages of this instrument

are—1st, That the scarification and vaccination are effected by one application of it. The point, previously dipped in lymph, being simply drawn over the skin, scratching it to the required depth; and 2d, The rapidity with which a number of individuals can be vaccinated at a time; the quantity of lymph capable of being held between the blades, being sufficient for 20 or 30 applications. This instrument is extensively used in Denmark, where the practice of re-vaccination is general, and is almost the only one employed by the army and navy surgeons, who consider it superior to those in use in this country.

Dr. Marcus, also informed Dr. Struthers that in Denmark the practice of preserving the vaccine lymph, in capillary tubes has been general for some years past.

The *Monthly Journal of Medical Science* states that "Some interesting tables have issued from the Health Office, comparing the loss of life by war and pestilence. It appears that in twenty-two years of war there were 19,796 killed, and 79,709 wounded, giving an annual average of 899 killed and 3623 wounded. In 1848-49, there were no fewer than 72,180 persons killed by cholera and diarrhœa in England and Wales, and 144,360 attacked; 34,397 of the killed were able-bodied persons capable of getting their own living! Besides these deaths from the great epidemic, 115,000 die annually, on an average, of preventible diseases; while 11,419 die by violence. Comparing the killed in nine great battles, including Waterloo—4740—with the number killed by cholera in London in 1848-49—14,139—we find the difference of 9399 in favour of war. In cholera visitations, 12 per cent., sometimes 20 per cent. of the medical men employed, died. The London missionaries die as fast as those in foreign countries, and there are some districts in London which make the Mission Society ask themselves whether they have a right to send men into them. From the returns of twelve Unions it is found that 3567 widows and

orphans are chargeable to the cholera of 1848-49, entailing an expenditure of L. 121,000 in four years only."

The *Journal de Commerce* of the island of Reunion contains a communication announcing the trial of a new method of applying Chloroform, or Ether, in allaying pain in Surgical operations. Its application is in this wise—so soon as an operation has been determined on, the contents of a bottle of ether, or chloroform, are poured drop by drop upon the part for excision; whilst an Assistant forwards the evaporation of the fluid by the use of a pair of bellows. The part affected soon becomes completely insensible, and the bistoury, or incision knife, causes no pain. Experiments on an extensive scale have been made at the Hotel Dieu at Paris, and with the most perfect success. The above facts are communicated in a letter by the March Mail. It is well known that the unfortunate accidents which have resulted from a too complete stupefaction of the senses, have been caused by the inhalement of chloroform; and on the other hand, ether has been very frequently found tardy and uncertain in its operation. Our Medical men have therefore endeavoured to remedy partially the effects of both—the one as too powerful, the other too evanescent, by the application of chloroform and ether in equal parts. But the new mode of application, which we now announce—viz., the local employment of chloroform, will obviate every danger, by producing insensibility to the Surgeon's knife, through the benumbing of the part destined for operation.

The following has reference to the foregoing subject:—

"The production of local anesthesia in disease by the direct application of the vapour of chloroform, was first brought into notice by Dr. Hardy of Dublin, and has lately excited much attention. The instrument, which he invented for the purpose, consists of a small metallic cylinder holding a sponge; a pipe is fixed at one end, and to the other end a gum elastic bottle is attached, provided with a valve for the admission of air. When the sponge is moistened with chloroform,

pressure on the elastic bottle forces the vapour through the pipe, and the jet of vapour can be applied directly to the affected part. The first effect produced by the application of the vapour is a sensation of heat, which may even cause uneasiness; but this is quickly succeeded by the subsidence and complete removal of pain. The relief is said to be as speedy and perfect as it could be by inhalation, and is so permanent that the pain does not return again for several hours, and then only in a mitigated degree; and there are no unpleasant subsequent effects, such as occur after inhalation, or after the use of narcotics. Dr. Hardy relates several cases, mostly of uterine disease, and generally of a very painful and distressing kind, in all of which immediate and complete relief was afforded by the anesthetic douche. His first case was one of cancer of the uterus, where the excessive suffering was completely removed in a few minutes by the chloroform vapour; and, when the pain afterwards returned, the same means were always resorted to, with a like effect. In his second, third, fourth, and fifth cases, which were examples of uterine disorders, attended by great pain of the back and womb, the douche applied to the uterus caused the cessation of the pain, first in the back, and afterwards in the womb. In a case of great irritability of the nipples, in various other forms of local irritation, and particularly in a case of pruritus pudendi, the anesthetic application was equally successful. From this experience of its action, Dr. Hardy considered the local application of chloroform to be preferable to its inhalation.

Thus strongly recommended, the practice was repeated lately in Paris pretty extensively, but unfortunately, the same success has not attended it. At first, indeed, M. Nélaton, after applying the douche, incised an abscess on the foot without the patient showing any symptoms of pain; and M. Dubois produced insensibility in a painful abscess of the axilla and wound of the back of the hand. But, with these and a few other exceptions, the douche has generally failed to produce anesthesia in surgical operations. Velpian used it, without success, in a case of sbscess and of cancer; Giraldes and Nélaton in subsequent trials; Gosselin and Ricord found no effect produced by it; and Roger found it completely ineffectual in producing anesthesia on the sound skin. Langier, however, states that he has found this method of service; and, in a case of painful stump, after amputation of the thigh under M. Larrey, the patient felt great relief from his

sufferings after the chloroform application. With the view of increasing the effect, several modifications of the original apparatus have been devised. M. Rickard used a much larger reservoir of chloroform, and expelled the vapour by means of bellows. In a case of fistula in ano, in which he employed this apparatus, however, no other effect was produced except a sensation of cold; the incisions were as painful as they generally are. M. Maisonnenue having to perform amputation of the toe, enveloped the foot in an India-rubber bag, in which chloroform was poured, so as to keep the part in anesthetic vapour bath; but, instead of insensibility, a painful feeling of burning, and so much local hyperesthesia were produced, that the operation had to be put off till next day. In short, the method has so completely disappointed expectation, that the surgeons have latterly entirely abandoned it. M. Velpian, indeed, thinks that ether and chloroform cannot Produce anesthesia unless they are absorbed by the lungs; and he looks upon Dr. Hardy's cases as not at all conclusive, in consequence of the irregular duration of uterine pains, and their frequent spontaneous disappearance. Yet, even in uterine cases, M. Dubois has renounced its use as quite ineffectual. In consequence of the failure of Dr. Hardy's plan, attention is now being directed to other local anesthetics. Velpian still uses in many cases the production of cold by a freezing mixture of ice and common salt; and the cold produced by the volatilization of ether and chloroform has lately been tried, as likely to be more efficacious than the douche. M. Ricket has employed this local anesthesia by refrigeration in two cases, with partial success. The chloroform or ether was dropped upon the part, and its volatilization hastened by a current of air from a ventilating apparatus which M. Mathieu has invented. The incisions which were made in the part caused so little pain, that there could be no doubt that the sensibility was deadened by this means.*

[However deficient in success hitherto, local anesthesia is of such great practical importance, that it well deserves to be investigated and carried out, with all the appliances and resources of modern ingenuity. We understand that Professors Syme and Simpson have made trial of the anesthetic douche in cases of abscess, but although a slight and superficial impairment of the sensibility was noticed, no diminution of the feeling of pain took place. Dr. James Arnott's plan of

* Gaz. de Hopitaux.

freezing the skin and subjacent parts, seems to us well adapted for minor operations in surgery, and we feel surprised that it has not been more extensively tried in this country. M. Velpean has pronounced strongly in its favour. M. Richat has published some cases of operations performed without pain, by means of an ingenious apparatus, constructed by M. Mathieu. By this instrument a fair amount of ether and of air is simultaneously directed to the part. Dr. Liégard (de Caen) has pointed out that the peasants in Lower Normandy have long been in the habit of preventing pain by squeezing strongly the fore-arm or leg, when operations are performed on the hands or feet.]

The following particulars of a case of *accidental rupture of an ovarian cyst occurring during pregnancy, and followed by spontaneous cure*, was read from *Dr. Gibson* of Dundee :—

"RUPTURE OF OVARIAN CYST DURING PREGNANCY—RECOVERY.

Mrs. L——, a lady of very delicate constitution, and the mother of two children, but who, previous to my becoming her medical attendant, had mis-carried repeatedly, and undergone at different times a long course of treatment by an eminent practitioner in one of our metropolitan cities, on account of chronic inflammatory ulceration of the uterine neck, aborted again on the 27th July 1849, at the ninth or tenth week of pregnancy, and had flooded profusely before I could reach her residence some miles off in the country.

I found reason for believing this abortion to have been the result, like the others, of a renewal of the same chronic inflammatory mischief as formerly, and had accordingly to subject her to the appropriate treatment for some length of time ere I had the satisfaction of seeing her restored to a fair measure of health and exemption from suffering. One very profuse menstruation which meanwhile occurred at the end of seven weeks from the time she mis-carried, having appeared very materially to contribute to the relief of her uterine state, and to hasten on her amendment. When, in the month of October, and just at the period when the catamenia should again have made their appearance, she was suddenly seized, after a walk that fatigued her, with violent pain in the lower part of the back, affecting chiefly the left side at first, but soon stretching round to both hips, and attended with intense sick-

ness at stomach and harassing frequency of calls to make water. After three or four days of this suffering, she found the abdomen had suddenly become enlarged at its lower part, presenting a tolerably firm round tumour of about the size of an orange, situated towards the left iliac region, and sufficiently movable to admit of its being displaced and pushed about to a certain extent.

On the 30th of October, that is, fifteen or sixteen days after all this had commenced, I was requested by her husband for the first time to see her, the pain, nausea, and irritability of stomach having been meanwhile incessant. I then found that the tumour had increased in volume to about the size of a fist, was perfectly smooth on its surface, and of a well-defined globular form, still inclined towards the left iliac region, but readily movable; tender on pressure, which at the same time aggravated the pain and nausea, and attended with a constant distressing sense of internal stretching, distension, and weight.

Although it appeared to me to be an ovarian enlargement of one kind or another, though the suddenness of its origin, and the symptoms attending it seemed at the moment opposed to that view; while my patient's own conviction was strong of her pregnancy, in spite of the entire novelty of her feelings and sufferings, and whatever the tumour might be.

Nor did a careful vaginal examination at this period throw much light on the matter, though I found the body of the uterus somewhat enlarged, the cervix elongated and somewhat voluminous, and the os so open as readily to admit the point of the finger, while they were all very tender on pressure. Only the fear of her pregnancy, to which the absence of the catamenia imparted some likelihood, deterred me from using the uterine sound.

By the end of November the tumour had attained, at first very rapidly, latterly more slowly, at least the size of two fists; was round as a melon, firm but somewhat elastic to the feel, and still perfectly movable from side to side, though it generally occupied exactly the mesial line as she lay on her back, and ascended about an inch beyond the umbilicus above; while below, it admitted of the fingers being thrust deep into the abdomen between it and the pubis.

The uterus also by this time had itself undergone a very notable increase in volume, its firm, round fundus being now easily discovered to have risen to a level with the brim of the pelvis; while on a vaginal examination, the cervix and os were found situated considerably higher than formerly, and the body of the organ was felt to have expanded so much as nearly to fill up the cavity.

On the whole, the hitherto perplexing ambiguities of the case seemed to be now clearing up. The fact of my patient's pregnancy was becoming more and more probable; while it was scarcely possible to suppose the tumour to be any other than an ovarian cyst, which the symptoms gave too much reason to fear had inflamed and might be undergoing a process of slow suppuration.

Meanwhile, the patient herself was now miserably dejected in spirits, got almost no sleep, was tormented with thirst night and day, and an increasingly obstinate state of the bowels; while the pulse was generally small, soft, and feeble, and she was for the most part very chilly, with occasional very transient flushes of heat. But as she resolutely declined being farther subjected to treatment of one kind or another, and expressed her settled desire just to let things take their course, I know for some time in a great measure discontinued my professional visits, though I heard of her frequently, and, I confess, was under constant apprehension of the cyst sooner or later giving way into the abdominal cavity, and thus, as a matter of course, almost speedily causing her death.

Matters, nevertheless, continued essentially in the same state as before, till the beginning of February 1850, when all doubt of her pregnancy having, meanwhile, in due time been settled by the occurrence of quickening, my patient, in the act of suddenly starting up from the sofa, felt conscious of violently straining herself. The immediate effect of this was a great aggravation of all her previous suffering, which in a few hours reached a pitch of absolute agony, accompanied by extreme faintness and sickness at stomach. The following morning, however, her intense suffering abated, and that rather suddenly, when, from sheer exhaustion, she fell into a prolonged and sound sleep, from which she awoke much recruited, and in all respects better. It was now found that the tumour had quite disappeared, and

that a great diminution had taken place in the size of the belly. Far, too, from any of the evils arising which I had dreaded so long, her health from this time improved very speedily, and she went on in comparative comfort till the 27th of June, when I was summoned to attend her accouchment. Her labour proved perfectly easy and natural, and she gave birth to a very fine boy of the average size; not a trace being to be afterwards found of the tumour, nor a single untoward symptom occurring, while she had also so completely recruited her strength as to be able to continue nursing for the usual period.

Thus terminated what appears to me a case of very singular interest; spontaneous cure and recovery taking place under circumstances so apparently desperate as the rupture of a large ovarian cyst into the abdominal cavity, and that during pregnancy. For while it will not be doubted, I think, that it *was* by sudden rupture that the tumour in this case disappeared—the only way of accounting, in fact, for what occurred in the beginning of February. I satisfied myself by the entire absence at the time or afterwards of any outward discharge, that it was into the sac of the peritoneum it had emptied itself, and not by venting its contents into any of the natural outlets with which the walls of the cyst might have contracted adhesions.

Rupture of Inflamed Ovarian Cyst after Delivery—Death.—*Dr. J. A. Sidey* reported the following case:—

Mrs. Niven, aged 36, mother of 5 children, had always enjoyed good health, but was of spare habit, was struck or kicked by her husband on the right side a little above the pelvis, on the 28th of October. She was then seven months pregnant. At the time of the injury she felt sick and faintish, but was sufficiently well to give evidence in court against her husband, who was sent to jail for fourteen days. Sickness and fainting recurred three or four times a day until the 1st of November, when I was sent for. I then found her labouring under symptoms of shock, she was pale, cold, and almost pulseless, and fainting on the slightest exertion. She also complained of severe pain in the right iliac region, which bore the marks of a severe contusion. She required the free use of stimulants before she was able to bear the application of leeches and a blister, which so relieved her that she was enabled to go about her usual duties in a week.

On December 29th she was delivered of a son, being attended by Mr. D. Stewart. The labour was natural, and nothing abnormal discovered at the time. She progressed favourably up to Friday, 3d of January 1853, when she was seized with shivering and slight symptoms, accompanied with pains in lower part of abdomen. These were relieved next day by the use of turpentine poultices and Dover's powder.

She, however, remained in bed until Saturday 10th, night, when she rose. After sitting about ten minutes, she felt sick, and went to bed, when she was seized with very profuse hemorrhage from the uterus. She fainted several times, and became quite blanched. The hemorrhage was subdued by the use of Gallic acid and ergot, and the employment of cold cloths to pudenda. On Tuesday night it was completely restrained. She gradually improved until Friday 16th, night, when she rose and made her bed herself, walking bare-footed over a stone floor. She had scarcely got to bed when she was again seized with shivering, followed by a profuse cold sweating. Next morning when I saw her, in company with Dr. G. Weir, she complained of pain in left side, and over the region of the uterus. The pain was much increased on pressure, especially on touching the upper part of a tumour of about the size of the fist, and which was situated directly behind the symphisis, rising about an inch above it, and supposed to be the uterus. On a vaginal examination, the os was slightly open, and felt velvety. On the right side of the os there was a hard tense swelling like the end of an egg. Tongue white, furred, and moist. Bowels had been moved. No dysuria. Pulse 90.

She was ordered a blister, to be applied over the tumour, and a diaphoretic mixture. In the evening she was again examined, when a swelling similar to that on the right was felt on the left side of the os, and also another joining the two lateral swellings passing in front of the cervix. She was then ordered Mas. Pil. Hydrarg. iij., Pulv. Opii. gr. i., every three hours.

18*th*.—In the morning she was much in the same state, the pain continuing, but not so severe. She was then ordered to have eight leeches applied to the anus. In the evening there was a tendency to

sympanitis and dysuria ; in other respects, the same. She was ordered a turpentine and oil enema.

19*th*, *Morning*.—Has had rather a restless night, bowels have not been freely moved, still a good deal of tympanitis, and also frequent desire to make water. Ordered to continue the pills, and to have an assafœtida injection. In the evening she complained of sudden and severe pain in pubic region, increased on pressure, and which was followed by symptoms of peritonitis. The pulse rose to 120—small. She had an anxious look. There was a great deal of tympanitis, and slight vomiting. She was then ordered Cal. and Opii pills every two hours, and a blister over the painted part.

20*th*.—Tuesday and Wednesday she continued much in the same state ; the bowels had never been freely moved, and the tympanitis and vomiting still continued. On Wednesday evening the pain suddenly left the pubic region, and removed upwards to the stomach. She complained of no pain except in that part. The tympanitis had disappeared in a great measure, but the vomiting had become stercoraceous. Dr. Alison saw her, and she was then ordered ij. gr. Opii every two hours,

Thursday.—Passed a very restless night, and has had a good deal of same kind of vomiting, but without effort, the ejecta rising into her mouth. She is cold, and has a very anxious and sunken aspect. Pulse small, and scarcely to be felt. No pain except at stomach.

Died about half-past four.

Post-mortem forty-six hours after death.—Present Drs. Alison, Keiller, Pinkerton, and Sidey.

On opening the abdomen, all the intestines were found glued together by an effusion of recent lymph, the greatest quantity being about the stomach. In the pubic region, the upper parts of a dark gangrenous mass presented, partially covered with lymph. This tumour, which rose about an inch above the pubis, on examination was found to be the right ovary, which was impacted at the time, and occupied the whole of the pelvis, lying in front and above the uterus, and also pressing upon the bladder. On lifting up the ovary, which was slightly adherent, it was discovered to be twisted, so that it presented its posterior surface as the anterior surface of the tumour,

A quantity of thick bloody fluid escaped through a rugged and ulcerated opening situated on the posterior aspect and left side, as it lay in situ.

On removal, the tumour proved to be a multilocular ovary with the ruptured opening on its outer surface, two smaller openings were seen also. On cutting into one of the largest cysts, a clot of blood about the size of a walnut presented. The intermediate walls of the other cysts showed small points of ulceration. The uterus and left ovary presented a healthy appearance.

No other parts were examined.

Remarks.—The chief points of interest in this case are three in number, viz., 1st, The strong resemblance in symptoms and signs to a case of pelvic cellulitis, as manifested by the protracted convalescence after delivery, the paleness of the surface, the frequent rigors, followed by a feeling of bearing down, difficulty of defecation, and dysuria, and on examination, the presence of a tense painful tumour, with slight fluctuation, situated on both sides of the os uteri, and also crossing in front of it. Also a distinct tumour felt projecting slightly above the pubis, and tender to the touch. These symptoms were such as fully to justify an opinion that the case was one of pelvic cellulitis. 2d, The position the ovary occupied in the pelvis and median line. 3d, I think requires a good deal of consideration, and is interesting in regard to the medico-legal aspects of the case. But I shall merely resolve it into two questions. Did the blow cause the hemorrhage, followed by a subacute inflammation, and subsequent ulceration into the peritoneum? Or did the hemorrhage and inflammation take place spontaneously, as is often the case in ovarian tumours, results which might be promoted by the pressure necessarily exerted on such a large body by the contraction of the uterus and abdominal muscles during delivery?

Dr. J. A. Sidey also stated the following particulars of two cases of rupture of ovarian cysts, occurring in his father's practice:—

RUPTURE OF INFLAMED OVARIAN CYST.—DEATH.

Miss M., æt. 36, in the year 1840, for the first time observed a tumour in the right iliac region, which on examination proved to be ovarian. The tumour gradually increased, and she had several at-

tacks of pelvis inflammation, followed by phlegmasia dolens of the right leg. In 1841 the tumour became very large and the breathing oppressed. Diuretics and blisters were extensively used, without any marked effect. On the 20th of June she was tapped, and about five gallons of a viscid fluid drawn off. No untoward symptoms were manifested, and her health became much improved. But the fluid soon accumulated, and in about a month afterwards she was again tapped, and two and a half gallons drawn off. Within twenty-four hours a violent rigor followed, accompanied with pain in abdomen ; pulse 120. There was also great tension of the abdomen and vomiting. These symptoms continued for several days, but were at length removed. The sac filled again, and in three weeks after the second operation, the opening ulcerated and burst, and about three gallons of a limpid fluid was discharged, and also about ten ounces of pure pus. During August she improved very much, but on the 6th of September both orifices made by the trocar burst, and about the same quantity of pus, of a slightly blue colour, was discharged. At this time she became very weak, and tongue and fauces red and apthous. She, however, gradually improved with the free use of stimulants, and was able to sit up in bed. On the 22d there was again a discharge of pus through the wounds, amounting to about one-gallon and a half. On the 25th of October there was another discharge of pus, and continued to discharge for several months about ten or twelve ounces daily, generally of pus, but sometimes of a clear fluid. Her health improved notwithstanding, so that on January 1842, she was able to sit up for several hours and sew—the tumour at the time being about the size of a small cocoa-nut. On the 7th of February, after eating a hearty dinner, she was seized with the intense abdominal pain and vomiting, and died in a few hours.

On examination it was found that the contets of the multilocular ovary, in a state of inflammation and ulceration, had been discharged into the abdomen.

Selections.

On Medical Testimony and Evidence in Cases of Lunacy.—By Thomas Mayo, M. D., F. R. S.

Lecture II.

Destructive Orgasm or Tendency considered in its relation to Insanity.—This Plea, how extended to it through the hypothesis of Moral Insanity, to the identification of Vice with Mental Disease.—Opinions and Cases of Pinel, Prichard, and Esquirol Estimated.—Practical tendency of Men to fall in with *their* views in dealing with the Homicidal Orgasm Results from absence of Secondary Punishments for *some* delinquencies of the Insane.—Illustrative Cases.

INSANITY.

I have discussed the subject of insanity in its relation to medical proof under its essential element, delirium, as indicated by inconsecutive, incoherent trains of thought, and by certain delusions, over which the patient has no control, or no such control as should prevent their influencing his conduct. I have now to consider a peculiar state under which the leading and important subject for judicial consideration is an orgasm, or intense and sometimes sudden desire which leads the sufferer to perform some criminal act; this orgasm, not always susceptible of being construed into delirium, as not being obviously attended either by a morbid delusion, or by a state of inconsecutive thought. In regard to this condition of the case a question instantly arises, whether, in the absence of direct, it may admit of constructive, proof of delirium, that is, of a morbid state of the intellect; or must be removed into the category of brutal vice.

Certainly there are cases of the above orgasm, in which it seems to suggest to its victim an objective false perception, leading him to some criminal act, to which all his feelings and moral sentiments are opposed. A mother hears continually, or at intervals, a voice commanding her to cut her infant's throat; or the agent is preceded by a ball of fire, leading him to the person whom he imagines he must murder. In such cases as these, false perceptions being clearly made out, the medical witness has no difficulty in affirming the presence of insanity. But there exist many cases in which a motiveless and sudden act of murder is performed or contemplated, for which Medical writers and witnesses in courts of justice have endeavoured to find a place in the category of insanity at some expense of logic, and at a great expense of public good. They have endeavoured to make the act prove its own

insane character in the absence of any delusion either contained in *it*, or else where existing in the man's character. I believe that the knot which they thus cut might, in many cases, be untied ; that is to say, that a more profound analysis of the patient's history, in cases in which the crime is at variance with his normal character, would detect a specific insane delusion or a continuously morbid state of the imagination, under which everything presents itself in shades and hues different to those which it impresses upon all other minds. This will the more be admitted, if the admirable tests recorded by Dr. Esquirol, in his remarks on homicidal monomania, are applied in the inquiry. But a more summary procedure is adopted by Dr. Prichard, who has largely treated this kind of case, and whose terms, " instinctive insanity," and " moral insanity," convey the hypothesis on which he would deal with the difficulty. Under the first of these two expressive terms, Dr. Prichard conveys a new modification of nosology. He presumes that there exist two species of insanity : one being that which I have hitherto considered as an inclusive state, in which moral perversion is blended with intellectual perversion ; the other being a state in which the moral perversion exists alone, being of such kind and degree as to justify its being considered abnormal, in the same sense as that in which insanity is abnormal, when the intellect participates. Now, to this hypothesis I object on two grounds. First, that it unnecessarily breaks down an accredited distinction, which assigns an intellectual lesion as a characteristic to the disease termed insanity. I say unnecessarily, because it does not suggest that there is no such state as the insanity, characterised by delirium ; but determines that the word which formerly expressed that state shall be loosened in its signification, so as to contain, as species, two states : one, the very malady to which its meaning had been formerly confined ; the other, a group of symptoms formerly contemplated in a very different light. Changes of name thus instituted in matters purely speculative are merely productive of obscurity, or, at the most, of the supposition that knowledge has been increased, when only words are altered. But where great practical consequences become associated with them, these changes assume a very mischievous character ; and this contains my second ground of objection, namely, that the change contemplated by Dr. Prichard tends to include in a class which has been emphatically pronounced morbid, in a sense which supposes the persons embodied in that class to be either wholly or partially irresponsible, certain other persons, whose only claim to be considered morbid lies either in eccentricity and atrocity of vice, or in their combining with a low moral condition the peculiarites of the hysterical diathesis. These, in the first points of view, are as responsible as any other delinquents, in the latter being mainly and, on the whole, a responsible class.

For, with respect to the first point—viz., eccentricity and atrocity of vice—I may observe, that the theory of either moral or impulsive insanity is liable, for anything that Dr. Prichard has suggested, to occasion the sudden outbreaks of the brutal character—a character under

rapid development at present in the lower orders of the country, to find refuge under this plea. Such was the application of it which, some years ago, protected the Honourable Mr. Tuchet from the penal consequences of a great crime. That gentleman put to death by a pistol-shot the marker of a shooting gallery. The act was sudden, and there was no apparent motive; but it was not performed under any semblance of delirium. Mr. Tuchet was eccentric, and he was *blasé*. He fancied that he desired to be hanged; at the gallows he would probably have thought differently; and he was reckless and brutal enough to give himself a chance of this fate at the expense of the life of a fellow-creature. I have noticed him since in the criminal department of Bedlam, insouciant and indifferent enough, but certainly not insane in any sense of the word that would not entirely disintegrate its meaning; neither, when we proceed to consider the sense which the law intends to give to the expression of the certificate,—"unsoundness," shall we find this epithet at all more appropriate to Mr. Tuchet's case, which was simply one of brutal recklessness. With respect to the misapplication of the plea of insanity to hysteria, such was the case of a nurserymaid placed in Bethlem Hospital in 1846. A trifling disappointment relative to an article of dress had produced in her a wayward state of mind. She laboured at the time under diminished catamenia. An object to which she was generally much attached came in her way, namely, the infant whom she nursed; and she destroyed it, as a fanciful child breaks in its moodiness a favourite doll. No fact more nearly approaching to delirium than the above was stated in exculpation or excuse at the trial. But Dr. Prichard's work on the different forms of insanity, in relation to jurisprudence, was published in 1842; and, by 1846, juries had learned to convert the uncontrolled influences of temper into what he terms instinctive insanity. As an instance of this class of cases, in which the judicial authorities came rightly to a very different conclusion, I will quote to you the following one from Sir Woodbine Parish's last work on Buenos Ayres. Having spoken of a certain wind occasional in that climate, which in some persons produces peculiar irritability and ill-humour, almost amounting to a disorder of their moral faculties, he proceeds as follows:—"Some years ago, Juan Antonio Garcia, aged between thirty-five and forty, was executed for murder at Buenos Ayres. He was a person of some education, and rather remarkable for the civility and amenity of his manners; his countenance open, his disposition generous. When this *vento niorte*—this peculiar north wind—set in, he appeared to lose all command over himself; and such became his irritability, that during its continuance he was engaged in continual quarrels and acts of violence. Before his execution, he admitted that it was the third man he had killed, besides being engaged in various fights with knives. When he arose from bed in the morning, he told Sir Woodbine's informant he was always aware at once of its accursed influence upon him; a dull headache first, then a feeling of impatience at everything about him. If he went abroad, his headache generally became worse; a heavy weight seemed to hang over his temples.

He saw objects, as it were, through a cloud, and was hardly conscious where he went. He was fond of play; and if, in such a mood, a gambling-house was in his way, he seldom resisted the temptation; once there, a turn of ill-luck would so irritate him, that he would probably insult some of the by-standers; if he met with any one disposed to resent his abuse, they seldom parted without bloodshed." The relations of Garcia corroborated this account, and added, that no sooner had the cause of the excitement passed away, then he would deplore and endeavour to repair the effects of his infirmity. "The medical man," says Sir Woodbine, "who gave me this account attended him in his last moments, and expressed great anxiety to save his life, under the impression that he was hardly to be accounted a reasonable being." But, he adds, to have admitted that plea would have led to the necessity of confining half the population of the city when this wind sets in. I quite agree with the conclusion which this remark implies, as to the fate of Garcia. He was himself aware of the murderous instinct to which he was liable, and of its exciting causes. Surely, when such knowledge is in the possession of the delinquent, he must be made responsible for the non-avoidance of exciting causes.

M. Georget gives a case, which may be usefully contrasted with the above as to its claims on the plea of insanity. Hypolite Mendic, a non-commissioned officer in the French service, had gradually become morose, capricious, and brutal in his conduct, so as to excite the disgust of all his companions. This ends in disobedience of orders, and such violence towards his commanding officer as to render him liable, on trial, to the sentence of death. The trial proceeds with the customary anxiety of the medical witnesses to make out a plea of insanity, and the tendency of the court, observable, indeed, in all M. Georget's reports, to give the criminal the benefit of the most careful inquiry into extenuating circumstances, and at the same time to protect the public against that plea, when overstrained. The symptoms of this case wanted the acuteness of character which alone tended to palliate the crimes of Garcia; but, in the course of Mendic's trial, one weighty fact was made out—namely, that before his outbreaks he was subject to an epileptiform seizure, out of which he emerged into the wayward state above noticed. This might fairly justify an hypothesis of delirium, as present at those paroxysms. If judgment was overpowered in Garcia, it was suspended in Mendic. There are shades of distinction in the amount of man's presumed responsibility to society, which should be indicated by corresponding shades of punishment when offences come; but in all cases consciousness is presupposed as a condition of responsibleness; so that a disease affecting consciousness renders the agent, so far forth, unfit in kind as well as in degree, to become an object of punishment.

Such are the principles of distinction, through which humanity and justice dictate, that the diseases of the mind should be relieved from

certain penalties of the law. Let us consider how this is effected under the hypothesis of Dr. Prichard, in regard to moral or instinctive insanity, the latter of these terms being, in fact, a sub-species of the former; and first, I will ask, what is the form and meaning of this term moral insanity? or, to put this idea in another form, what insanity is not moral? I have myself pointed out, in the elements of the pathology of the human mind, that the earliest indications of approaching insanity are moral. The same idea has since been largely treated by Dr. Forbes Winslow, in his work, on the "Incubation of Insanity;" and at every period of its actual presence, the powers of self-control are interfered with, the affections suppressed or altered, the passions excited or perverted. But the admission of this truth affords no ground for a distinction that shall exclude or assume the absence of intellectual perversion from any state which claims the title of insanity. And this involves no mere war of words with those who, like Dr. Prichard, profess to treat the subject of insanity in relation to jurisprudence, and therefore so far as criminal law is concerned to punishment, under the universally admitted hypothesis that insanity tends to exculpate the criminal. Let us, indeed, see how this hypothesis can be carried out in its appropriate cases, insanity being also supposed to be compatible with the absence of intellectual perversion. In describing the character of the infamous Lord Wharton, Dr. Swift somewhere expresses himself as follows:—"I have had the honour of much conversation with his Lordship, and I am thoroughly convinced, how indifferent he is to applause, and how insensible to reproach; which is not a humour put on to serve a turn, or meet a countenance, but the mere unaffected bent of his nature. He is without the sense of shame or glory, as some men are without the sense of smelling, and therefore a good name is to him no more than a precious ointment is to these." Now, we have here a case, which may, if any, claim the privileges of moral insanity, if this be granted to Dr. Prichard; for it is even more than *perversion*; it is, according to Dr. Swift, the *absence* of the moral sense. But there was neither inconsecutiveness of thought, nor delusion observable in Lord Wharton. The following case has common points with the above extract from Swift, Mr. A—— was born in a respectable station, and is possessed of a good fortune, of as much at least as he has allowed to remain of a good fortune. He has a wife and children, and as many friends as his conviviality attracts, in spite of the hardness of his character. He has always been profusely extravagant, for his passions and appetites have compelled him to squander money, which he would probably have hoarded, if his selfishness had taken that turn. His temper is at once stern and violent, and all who know him expect that the dispositions of his will must prove him, to the last moment of his life, utterly unjust. If he had sufficient courage he would rob and murder, for his cupidity and vindictiveness are under no moral check; but he is naturally timid, and owes to this circumstance his avoidance of those acts which the law might construe into crimes. Such is Mr. A——, and such, or as nearly such, as the distinctive points which separate all individuals will allow, is

his neighbour Mr. G——. But there happens to exist a peculiarity in the latter, which has materially altered the course of his life, and its results upon others. Mr. G—— was observed to talk much to himself. This excited attention, and, on further enquiry, it was found that he was habitually under the influence of false perceptions, and believed himself solicited by certain voices audible to him alone, to perform acts, whether vicious or not, of a most incongruous character. Mr. G—— was accordingly recognised as insane, and placed under restraint, while neither Lord Wharton nor Mr. A——, nor, I might add, the homicide Lord Ferrars, would be viewed as amenable to coercive measures, on the ground of their peculiarities of character; nor would a claim to irresponsibility be admitted in their favour. Now, I would ask, if insanity confers some irresponsibility, how, on the occurrence of criminal acts, are these four persons to be dealt with, except through the application of the intellectual criterion. All have, in a degree, the moral phenomena of insanity. Yet, if all are allowed to escape unpunished under delinquencies, on the plea that they are insane, in three of these cases, those principles of criminal justice must be violated by which both nature and reason instruct us that vice must be antagonised. If all four are punished, the best sympathies of our nature are violated to an extent which would not be borne by judges, advocates, or juries, in not admitting one of them, Mr. G——, to that amount of irresponsibility which certain intellectual lesions, as discovered in him, are presumed in justice to afford. This single case equally requires the application of the intellectual criterion to enable us, when no delinquency has yet been committed by him, to protect him by coercion or surveillance against himself. But if this latter benefit were extended to the other three cases, it would naturally be deemed both by them and by law an interference with their liberty of action. They would not bear to be told that they are morally insane. They have a right to do what they like, unaffected, at least, by statutes de lunaticis; and the public have a right to demand that they should be hanged if they commit murder.

The tendency of the above reasoning is to point out that no abnormal state of mind confers irresponsibility (an attribute which the inventors of the term "moral insanity" conceive it to possess), unless such abnormal state of mind involve intellectual as well as moral perversion.

A few years ago, a middle aged woman, cook to a family in Harley-street, found herself in the disagreeable position of having an illegitimate child, previously out at nurse, thrown upon her hands, being left, indeed, at the house where she was residing. Her measures were soon taken, though the emergency was unexpected. The other servants being at that hour of the day, one o'clock, at the lower part of the house, she took the little boy up to her bed-room, strangled him, packed up and corded the body in a box, and sent it to a sister in Nottinghamshire. During the remainder of this day of murder, she was in her ordinary quiet state, and read her Bible a good deal. This

was nearly all the evidence that was substantiated at the trial, besides her own free confession of the deed. She was acquitted on the ground of an insane impulse existing at the time of the murder, a plea which never would have suggested itself, or been entertained, but for that mischievous neglect of the intellectual criterion, for which we are indebted to the hypothesis of moral and instinctive or impulsive insanity. In truth, the impunity derived from this plea is singularly inappropriate, as it generally accrues to that very class against which society possesses no protection except through their fear of punishment—namely, the unprincipled. Nor, I believe, are they slow in recognising and availing themselves of their privilege. In one marked case, it was proved to the satisfaction of the late Dr. Warburton and myself, that a gentleman at his asylum, whose insanity had been certified mainly on moral grounds,—that is to say, with no sufficient intellectual lesion,—was deliberately availing himself of its shelter from a criminal indictment. And we found reason to believe, that he had before similarly availed himself through a similar certificate of another asylum; the object on the former occasion being to avoid a charge of incendiarism, on this latter occasion of indecent exposure of his person.

Meanwhile, authors of eminence in mental pathology have expressed themselves strongly in favour of constituting a species of insanity that shall be exclusively ethical; and it is fit that I should examine the grounds of their opinions through a consideration of the facts which they advance. The more so, as I may thereby best be enabled to explain my own meaning. I have adverted to Dr. Prichard: now, I understand him and M. Pinel, the principal advocates of these views, by their expressions, "*Manie sans délire, manie sans lésion de l'entendement,*" moral insanity,—to signify a state in which there is no morbid delusion of the senses or the understanding, no incoherency or inconsecutiveness of thought, and yet which shall, as a form of insanity, entitle the persons thus affected to claim the privileges of irresponsibility, as a class, and not exceptionally. The opinions on this subject entertained by Dr. Esquirol in his remarks on what he terms reasoning insanity I shall presently consider. M. Pinel, the oldest of these writers, puts the question "Can mania exist without lesion of the understanding?"—to which state he uses "*manie sans delire*" as a synonymous expression. He replies to himself in the affirmative, and illustrates his opinion by three instances. The first has so important a bearing on my subject, that I must give it nearly in full:—"An only son of a weak and indulgent mother was encouraged in the gratification of every passion and caprice of which an untutored and violent temper was susceptible. The impetuosity of his temper increased with his years; every instance of opposition or resistance roused him to acts of fury. He assaulted his adversary with the audacity of a savage, sought to rule by force, and was constantly embroiled in disputes and quarrels. If a dog, a horse, or any other animal, offended him, he instantly put it to death. If ever he went to

a *fete* or any public meeting, he was sure to excite tumults, and generally left the scene with a bloody nose. This wayward youth, meanwhile, when unmoved by passion, possessed a perfectly sound judgment. When he came of age, he succeeded to the possession of an extensive domain. He proved himself perfectly competent to the management of his estate, as well as to the discharge of his relative duties, and he even distinguished himself by acts of benevolence. Wounds, lawsuits, and pecuniary compensations, were, however, still the consequences of his unhappy propensity to quarrel. But an act of notoriety put an end to his career of violence. Enragad at a woman who had used offensive language to him, he threw her into a well; prosecution took place, and, on the evidence of several witnesses to his furious deportment, he was condemned to perpetual imprisonment in the Bicetre."

Now, if I wished to escape out of a difficult controversy through a glaring example obtained from the avowal of an adversary in my favour, I should do so at this point in relation to M. Pinel. If this is mania or insanity, what is brutal recklessness? The next instance is the case of a man subject to periodical accessions of homicidal fury, in direct opposition to his ordinary feelings and sentiments. Here is, no doubt, moral disturbance; but where, and in what state, is the principle which, in the sane mind, co-ordinates and directs the passions and affections? Even assisted as they are by his natural feelings and sentiments, which are in the direction of right, this man's reason and understanding are powerless. Pinel would say, they are overborne by moral insanity. Which is most probable,—that this solution explains the case, or that the reason and understanding are themselves implicated in the abnormal state? I do not object to Pinel's explanation as false, but merely as partial and exclusive. The case itself may have been one of true insanity involving delirium,—a supposition made more probable by its intermittent course.

Pinel's third case of *manie sans délire* is the well-known one of the maniac liberated by the revolutionary mob at Paris, and signalising his delivery by snatching a sabre and cutting down some of his liberators. This patient was found by his liberators in a lucid interval. No account is given by Pinel of the character of his madness during its paroxysmal state, except in the simple fact, that he became excited by the cries and violence of his deliverers. Whatever psychological interest the case may possess, it has no reference to the point which it is adduced to illustrate,—viz., insanity without lesion of the understanding.

The moral insanity of Dr. Prichard is described by him (a) as "the form of mental derangement which consists in a morbid perversion of the feelings, affections, and active powers, without any illusion or erroneous state impressed on the understanding; it sometimes co-exists with an unimpaired state of the intellectual faculties." Having praised M. Pinel's first case (here alluded to) he proceeds to give

(a) Prichard "On Insanity, and other Diseases affecting the Mind."

a series of illustrations of his own doctrine, under the following title: —"Cases exemplifying the Description of Moral Insanity, and that of Monomania, (*i. e.*, partial derangement of the intellect,) or illustrating the Relation of these two Forms of Disease, and the transition from one to the other." Now, with respect to these cases, I must observe, that the transition, to use Dr. Prichard's phrase, exists in all; or, as *I* should venture to phrase the idea thus expressed by him, in all of them there is intellectual derangement as distinctly marked as is the moral derangement, with one condition, which seems to belong to insanity, that its moral phenomena come first into notice. In fact, the supposition which forms the basis of Dr. Prichard's discovery, that moral insanity "sometimes co-exists with an unimpaired state of the intellectual faculties," is not realised in one of his cases. Let us look at them more closely. In the first case (No. 1), a gentleman, after various traits of eccentricity, but without delirium—in other words, after the premonitory moral symptoms which ordinarily precede the intellectual lesion—adopts an ungrounded belief that his wife's affections are alienated from him—a notional morbid delusion—and drowns himself in a canal behind his house. No. 2 has laboured for some years, Dr. Prichard says, under moral insanity. But it is also admitted that he hears and believes in the reality of voices in different parts of his house, where they have no existence. He labours, therefore, under objective false perceptions, and may be claimed by those who affirm that delusion or incoherency is required to complete the idea of insanity. Case 4 is that of a farmer, who, being desirous of surveying an estate belonging to a gentleman in the neighbourhood, with a view to purchase, selects for this purpose the middle of a dark night, and insists upon being accompanied by the reluctant steward, with a lantern. Is there no intellectual lesion here? Of his fifth case, Dr. Prichard admits that it is doubtful whether it be one of moral insanity or of intellectual derangement. He ought to say of the latter as well as the former kind. In this case of dubious intellectual soundness, the patient made it his practice to open the window at certain hours of the night, and to cry out exactly twelve times; also to go every day after dinner into the middle of the quadrangle, and throw up his hat into the air a precise number of times, vociferating after each throw. When any person, whom he knew to be a physician, came near him, he would recoil with horror, and exclaim, "If you were to feel my pulse you would be lord paramount over me for the rest of my life." But Dr. Prichard, in his desire to have a form of insanity in which the intellect shall not have undergone perversion, lets into his catalogue of cases one of which I will venture to affirm, that it never would be called insanity at all except under an erroneous or cloudy hypothesis. (Case 9.) This singular victim of so-called insanity is described by Dr. Prichard as quick in perception, active in body, persevering, knowing the value of property, possessing good judgment, and an acute calculator; and, as to his moral phase, possessing a strong sense of duty, and of the most regular habits. He only distrusts his own abilities to an unusual extent. His right, then,

to be considered insane in any sense of the word is questionable; and the vagueness introduced into the subject by comprehending him in that expression, is imputable to that loosening of the definite sense of words, which I am endeavouring to prevent.

The course of Mr. Esquirol's inquiries has led him to refuse his assent to the views of Dr. Pinel and Dr. Prichard in their full extent, namely, as indicating a form of insanity in which the moral faculties are alone implicated. He cannot admit their cases into this category, without the assumption of what he calls a *delire partiel*, a perversion of reason to a limited extent; but he accepts the term *raisonnante*, as still applicable to the mind under this condition. The morbid state is a delirious episode in a being otherwise reasonable. The following abstract of a case from M. Esquirol's "*Maladies Mentales*" will help to elucidate his opinions on this subject:—Madame N., aged 23, a lady of the nervous temperament, having been subjected to some slight contrarieties, becomes excited. Being previously an attached wife and mother, she now neglects both her husband and child; neglects also the regulation of her house, in which she was previously exact; becomes impudent in her remarks, and even throws out charges against her husband in the presence of strangers. "A demon of mischief," says M. Esquirol, "seems to possess her; yet she is prompt and subtle in finding excuses, and can conduct herself so well in society as to baffle suspicions of unsoundness." Now, whatever idea M. Esquirol associates with the expression *raisonnante*, as applied to this case, viewed also by him as one of insanity, the burden of proof rests with him, that this lady was not in the course of it under delirium, involving incoherency of thought, or false perceptions, or both. Now, with respect to the right of such insanity to be called a *folie partielle*, as a state in which a portion of the understanding is perverted, a portion left sound, I must urge that, unless the human understanding can, like the moral properties which it regulates, be contemplated as divisible, these expressions involve a solecism in reasoning; and I shall, in another part, point out that this supposition is not justified by any legal opinions or decisions; on the contrary, it has received contradiction from the highest authority.

The above disquisition may appear a trifling with words; not so, when it is considered that the words involve doctrines on which formidable consequences hang, both moral and judicial. That distinction which I have been impugning must, if unfounded, be full of risk, as encouraging on inadequate grounds a supposition that the individual in question may be trusted in those points, to which the so-called partial disturbance—*folie partielle*—is presumed not to extend. Thus, in a case in which M. Esquirol adduces, of homicidal monomania or partial insanity, "the patient," it is also incidentally observed, "is afraid of walking about the house, lest he should break the Crown jewels." Now, I may here remark, suppose this latter fancy had been the one first observed in him, and had been accepted as the partial delirium, or under any other of the synonymous terms used by M.

Esquirol, leaving the rest of his intellect unimpugned, here the hypothesis might have cost a human life by occasioning partial confidence in the patient's sanity, and masking the homicidal orgasm. With respect to the word monomania, I may observe, that it is often used in a perfectly unobjectionable sense, not as expressing unity of delusion, but permanency and predominancy in some one delusion.

I now return to the consideration of this homicidal orgasm, which I have in some degree deserted while I have been endeavouring to unravel one sophism which too frequently places that orgasm in an illegitimate and forced alliance with the insane state. It is conformable with my object to ascertain as far as I can, with respect to that orgasm, what proof the law demands of the medical witness of its justly claiming to be considered in any given case an evidence of the presence of insanity. But before I directly enter upon this question, I must dispose of another of far more general import, as affecting, not only the results of the homicidal orgasm, but all those crimes, with their penal consequences, in exculpation of which the plea of insanity is set up. This question is as follows :—The presence of insanity being *granted*, what extent of irresponsibility is conferred according to the intention of the law of this country? This subject has been touched upon in my first lecture, in reference to the responsibility acquired by persons under a lucid interval. There is certainly a great concurrence in the expressed opinions and dicta of Judges, that insanity is not exculpatory, unless it comprehends and fulfils certain conditions in the Act. "It is for you to consider," says Mr. Justice Le Blanc, to the jury, "in a case of attempted murder, whether the prisoner, when he committed the offence with which he stands charged, was or was not capable of distinguishing right from wrong;" a vague expression, to which, as used by the learned Judge, and, I regret to add, by many other Judges, I beg leave to annex as its reasonable interpretation, the unambiguous terms of Lord Lyndhurst, in charging the jury in the case of Rex *v.* Offord. "It appeared, on the trial, that the prisoner Offord laboured under a delusive notion, that the inhabitants of the town of Hadleigh, and particularly Chisnall, the deceased, whom he murdered under that delusion, were continually issuing warrants against him for the privation of his liberty and life. Several medical witnesses deposed to their belief, that the prisoner, according to the evidence which they heard, laboured under insanity; and that he committed the act while under the influence of this disorder." Lord Lyndhurst, in summing up, told the jury, that they must be satisfied, before they acquitted the prisoner, that he did not know when he committed the act, *what its effect would be in reference to the crime of murder.* But the opinion of the collective Judges obtained after the murder of Mr. Drummond, and when the public was under a full sense of common danger, arising from the immunities of the insane, seem to remove all possible doubt from the subject.

The question and answer which obtained and embodied this opinion, are as follows :—

Q. What is the law respecting persons afflicted with insane delusions, respecting one or more particular subject or persons, as for instance, when the accused knew that he was acting contrary to law, but did he act with a view, under the influence of insane delusions, of redressing or revenging some supposed grievance or injury, or under the impression of obtaining some supposed public benefit?

A. Notwithstanding the party committed a wrong act when labouring under the idea of repressing a supposed grievance or injury, or under the impression of obtaining some public or private benefit, he was liable to punishment.

It is needless to add, that this announcement of law applies *à fortiori* to a person committing an act which he knows to be contrary to law, without any such ground of excuse as the "impression" here mentioned might seem to offer.

Such, then, is the law on the subject of criminal conduct in persons under insane delusions; but such is not the practice: witness that very case which elicited that answer of the judges, which I have just quoted from the annual Register. The adequacy of M'Naghten to comprehend the criminal nature of the homicidal act was unquestionable; yet he was acquitted on the plea of insanity, without the smallest reference to the conditions on which alone it is exculpatory, though they had been distinctly set forth as not complied with in his opening speech by the Attorney-General. Chief Justice Tindal, indeed, stopped the trial of M'Naghten, on the affirmation made by numerous medical witnesses, that the defendant was insane, (that state having been detected by them through the ordinary symptoms of the disease,) but not in reference to any presumed ignorance on his part of the illegal nature of his act; and this absence of a material condition of the question the Chief Justice veiled from himself as well as from the jury, by using in his address to the jury the abiguous expressions of knowledge of "right and wrong," not "legal and illegal," as absent in M'Naghten's mind. The miserable vagueness of the first distinction ought to occasion its disuse by the Bar.

Now what, I may ask, for the question closely concerns us as medical witnesses, what is the source of this discrepancy between law and practice, and how may it be obviated? The source of it is placed in the very nature of our criminal code, which recognises no punishment for offences committed by the insane, and forces the courts either to visit them with the same penal infliction as would apply to the same acts committed by the sane, their derangement being ignored, or to let them pass unpunished, however partially responsible they may appear. The source of it is, in fact, the absence of any secondary punishment for these cases, whereby the unwritten principles of justice, which forbid us to hang an insane delinquent, may be reconciled with the public safety, which occasionally may demand that he be punished.

Neither are the claims of the insane to this mitigation of punishment

answered by the opinion sometimes entertained that monomania, when that state is predicated, may be consistent with integrity of mind on other points. The important remark of Lord Brougham in the case Waring *versus* Waring applies to this point. "If," says the learned Lord, "the being or essence, which we call mind, is unsound on one subject, providing that unsoundness is always existing on that subject, it is quite erroneous to suppose such a mind really sound on any other subject." Meanwhile, we cannot urge, that a scale of secondary punishments is involved in any insurmountable difficulties of application. Its possibility of application is proved by the fact, that it is actually carried out in France, where the attention given to this subject is infinitely meritorious. Thus, the insane, but not irresponsible infanticide, Madlle. Cornier was punished in the French Court, by confinement and hard labour for life; greatly, I confess, to the disgust of the Medical witnesses, who did not apprehend, as clearly as the Court, the extent to which the human mind is susceptible of the influence of example even in some of its most disturbed states; yet no physicians have been more successful than the French in proving, by their able management of the insane mind, that it is influenced by motives, and can be tempted or intimidated into self-restraint. On this point I may observe, that, in the absence of an appropriate punishment, the philanthropist, who conceives *all* punishment inappropriate to the insane, may find himself disappointed in certain results. Thus, in the case of John Howison, a Scotchman, one out of a sanguinary group of homicidal cases quoted by Dr. Prichard, (a) there was undoubted evidence of insane delusion. "He had," says the reporter of this case, "false perceptions; for he used to sit brushing away flies for hours together with his hand, where there were no flies, and his landlady told him so; he had struggles in the night with witches, and was in general miserably superstitious." The case was, however, atrocious; and the intractable savageness of the man was rendered more disgusting by being associated with brutal voracity in regard to food. There was no secondary punishment under our law to which he would be amenable as insane, such as was inflicted on Mademoiselle Cornier in France. He was accordingly regarded as responsible, sentenced to death, and executed. This was an exceptional case, in which the sympathies were enlisted on the side of severity; but such exceptional cases will become more frequent, if the public learn to feel, that they have no other protective punishment awarded by law than the death of the criminal, if he should happen to be a madman as well as a brute.

On the nature and causes of the Diseases of Emigrants.—

By C. Cooper, Esq., M. R. C. S. E., Dublin.

As a nation, the Irish have always been proverbial for their kindness to each other, and to the stranger, in the times of trouble, distress, or

(a) Different Forms of Insanity in Relation to Jurisprudence.

sickness; and I myself, in my professional engagements amongst them, have often found them inconveniently so; but had any stranger that knew them not been told this of them, and seen them on board during my last trip, he would naturally have thought that he had been deceived, or that they were greatly altered; for there was scercely one of them who would assist the other. Whether this was owing to fright, or from whatever cause it arose, I cannot say; but in general we were left our choice of two plans in the attendance of the sick, and those were either to force some of the passengers to attend, to stupe and rub the sufferers, or else to bring some of the crew to do so. The last we had frequently to do. Some of the passengers were, to their credit be it said, willing to exert themselves to the last in trying to alleviate the sufferings of their fellow-passengers; while others, and I am sorry to have it to say of any from the country, were never willing, and in fact would refuse to lend a helping hand to aid any sufferer unless they knew that such a one had money, or they thought they could make anything by the attendance. And, notwithstanding the vigilance of the officers and myself, although as soon as a person was taken bad we would seize on their effects, and convey them to a place of safety, till we saw how things turned out, and either restore them if the party recovered, or leave them in the office in New York till their friends or relatives came and claimed them,—notwithstanding all our care and precautions,—yet I am sorry to say that not a little money and other articles were self-appropriated by the comrades and companions of the dead and dying. Several cases of this sort were told to us after we got into New York, but it was too late to remedy it then. It might have been done had we been told of it before we got into port.

So much for the sickness on board. It was the most melancholy trip I ever was out on; all through there was neither dancing or singing; the voice of mirth had been hushed, and it seemed as if a heavy, dark, and dismal cloud hung over our ship. The sound of music was unheard, and the daughters of music were brought low.

It may be asked, how was it that, with Government inspectors and Government medical men to look after the ships and their passengers, such cases were allowed on board? Every one almost knows that the emigrants are singly and separately examined by the Government medical officer, and any that are sick and unhealthy are sent again on shore; but yet in our case, as well as in that of other ships, the sick were passed. It is well known that in such a hurried inspection as is held on board of our packet ships, unless a person is really worn down by sickness or disease, the excitement caused by anxiety lest they should be rejected will increase the colour, and give a healthy look, which may easily pass muster. However we may make an excuse for the passing of the sick, we cannot do the same for the passing of the aged and infirm. In my last trip there were several persons passed that, when we got to New York, we would be told they had been rejected by two or three other captains, and at last passed on our ship.

This the inspectors could not but have known. I am perfectly aware that passengers constantly deceive the agents in respect of their ages and the ages of those going out; yet I cannot but believe that an examination of the features will show the age at least in eighteen cases out of twenty; and among such passengers sent out, we had, by my list of deaths and ages, taken as they occurred, one woman, aged eighty, who died; one sixty-seven, who also died, neither having a friend or relation on board, and also a woman who reached New York in health, but had no relation on board, aged seventy-two. We had others about as old, but they had friends. Now, it is far from right to pass such aged persons by themselves, and, if I mistake not, it is contrary to the regulations of the Emigration Act. I leave this statement to speak for itself, and leave the excuse to be made by those better able to do so than I can.

How were we off for medicines? All things taken into consideration, I must say we were very well off. Of medicine for that particular disease which we had on board during our last trip we certainly ran short, but I am sure this would have been the case with all ships carrying a like number of passengers, and under the same circumstances. Of some medicines, as the sulphate and carbonate of magnesia, we had what I would consider sufficient for eight or ten trips, with as many pessengers each trip. Mr. Westropp has hinted, even in the commencement of his article, on the insufficiency of medicine on board, —I will not say in quantity, but certainly in variety. I must also complain of this in some—in many cases. Most ships carry medicine-chests, and you may judge from the general size of these that they are incapable of holding a large or varied assortment of medicines; and some of our best and most useful medicines are omitted to make way for larger and less effective medicines. For instance, look at the large quantity of sulhpate and carbonate of magnesia, as well as the castor oil, that has to be put in each chest; examine the Government list of medicines to be carried in an emigrant packet-ship, and then look at the size of the chest, and say what quantity or what variety can be contained in that box. The castor oil is very good as a purgative, and is the medicine I generally prefer; as to the sulphate of magnesia, it is seldom I use it on board, and I believe I may safely say it is seldom used by any: indeed, during the year that I was out, I used the carbonate of magnesia but twice, and I had enough sulphate to last me four or five years, as I used it.

But all ships are not restricted to a medicine chest, but have regular dispensaries fitted up on board. The first ship I was in was an example in this respect. She had a dispensary, beautifully fitted up, and containing an extensive and varied assortment of medicines. Here you could lay your hand on almost every medicine you could wish. It will show what it was when I mention that here we had chloroform, several preparations of ether, all the acids, dilute and strong, and a variety of other medicines, which you would seldom see on board such ships.

The last ship I was in had also a dispensary fitted up, but by no means as extensive as the first, and capable of many additions and alterations; still in it was contained a more extensive selection than could be fitted in a medicine-chest. I believe these are not the only ships possessing these dispensaries, but I believe they are taking now the precedence of the medicine-chests; they are far more convenient for the medical attendant, and you are far less liable to have breakages or leakages; at all events, whether it be chest or dispensary, there is a wide field for improvement in respect to the quantity and quality of the medicines sent to our emigrant ships. The doctor must be provided with a large and expensive assortment of instruments, which he will seldom if ever have occasion to use; should he not also be provided with a good stock of various and useful medicines, which he may frequently have need for, and which would be most useful? Who would think of putting James's powder, kreosote, morphia, or chloroform, to mention no other preparations, on board a packet-ship for the benefit of emigrants? and yet these, and plenty other medicines which I could enumerate, would at times be not only welcome but useful.

But even the medicine that is on board is in most cases open to improvement. It may be that the attendant does not go on board till the last day, nay till the last hour; he may not care much about the quality of the medicine on board—or if he does, he has not time to say a word, or to find a fault; if he should, it is no avail; there is no time to rectify it; and even in the best of ships some of the drugs supplied are of a most inferior quality. And who is to judge of the quality of the medicines sent on board? Surely not the captain or the officers—what do they know of them? They may indeed know the use of the medicines, but they cannot tell the difference in the quality. Who then is to judge? Why, the Government and inspectors of course. And how is this done? Why, the ship lies out in the stream, ready to start—nay, sometimes it is going along while the officers are inspecting passengers, &c. This done, they then come and examine the medicines—to see if the proper medicines are on board, but no regard is paid to the quality. That signifies nothing. I know this much, that the last time I went out there was some mixture sent on board under the name of spermaceti ointment; it was discoloured, and of a heavy smell. Had I seen it before I went out, I never would have kept it, and some of these simple things require more looking after than some of the more expensive. I can say with truth, that I have gone out with medicines and ointments, &c., that I would not have used on shore. In this respect, therefore, without the slightest hesitation, I say that there is room for vast improvement in those ships designed for the carriage of emigrants between home and foreign parts.

Turning from medicines, let us for a few moments look at the accommodations on board for the medical attendant, the officers, and passengers.

Mr. Westropp gives but a poor idea in his sketch of the accommo-

dation on board the ship he was in, and I cannot but admit that his description is applicable to too many of our ships; but the old proverb of "one swallow's not making a summer," is applicable here. The ship Mr. Westropp went in was not a regular packet-ship, and therefore could not be expected to be as well fitted up as one of the regular liners, or to possess as comfortable accommodations. These regular ships, with some few exceptions to which I shall refer, are in general very comfortably fitted up. Let me for a few minutes glance at these accommodations; and, in doing so, permit me to go regularly through, commencing with the head, and passing to the steerage passengers.

Of course the captain enjoys his private state room; in general, well and neatly fitted up, but much of this depends on himself and his taste. Then come the mates; no doubt but they often have very poor accommodation, but in general the first mate has a room to himself; the second and third mate together. In our ships, also, which carry doctors—as far as ever I have known or heard—they have had a room to themselves; and for my own part, I have always found my room neat, tidy, private, and comfortable; and I believe that this in a great measure depends on whether they make themselves agreeable to the steward or not.

As to the crew—have you ever seen the accommodations for them in some ships? It is miserable, but in others it cannot be better. I have known and seen the forecastle in some ships to be two or more feet under water, and everything in them to be floating about—nothing dry, nothing comfortable. Is not this a nice place for men to sleep and live in? Is it not most conducive to health, and most decidedly comfortable, for a man to turn in to enjoy himself, after a four hours' watch in frost, sleet, snow, or rain? Is there no fear of impairing his health when he turns in with what he has on him wet through—and what is in his chest as bad, soaking with wet, and no means to dry them? Better care would be taken of a horse in a stable, a dog in its kennel, or even a pig in its sty.

But I have seen better things, and have been in ships where more regard was paid to the comforts of the poor tar, and where he was treated as a human being, with feelings as our own, and not as a brute. I have been in ships where the forecastle was not situated in the bows, but on deck aft of the foremast, always dry and comfortable, and the place provided with a good stove, round which poor Jack might sit and warm himself, and dry his clothes, when duty did not call him to the deck or rigging.

The abuse that seamen too often meet with demands notice and redress: it is often enough to cripple, and even at times to kill them. I have known them to be laid up from bad usage and savage treatment. I knew a man to come into port in one of the packet-ships with almost all his ribs broken, from being knocked down and jumped on by the officers, and afterwards (by all accounts) thrown down the

hold, that if anything was said, no one could swear that he was jumped on, but all the passengers could say he fell into the hold, and that would be sufficient to account for his injuries. Before ever I was told these particulars, or knew anything of them, I pitied the poor fellow as I saw him crawl ashore, bandaged up and in a crippled condition. And this is nothing novel; more than this I could tell, but I am not now writing on the wrongs of sailors. Thank God, however, that there are exceptions, noble exceptions to the above—that there are ships where seamen are treated like men and brethren, and where harsh treatment was and is unknown. During the whole time I was on board my last ship, I never saw a blow given or heard a harsh word. And was the duty performed any the worse on these accounts? No, far from it; there were the willing heart and ready hand; little sickness, and no skulking. Was a man sick he would not be driven out half cured to work, but would be made to lie by till perfectly well. Were this the way in most ships, we should not find it so difficult to get good sailors, nor have to complain of them when obtained.—*Lancet, May* 25.

On Headache and its varieties.—

By P. J. Murphy, M. D.

Congestive Headache.

There are two forms of congestive headache (independent of phrenitis)—the passive and the active. The passive congestive headache is what is commonly termed cephalalgia. Its causes are various, numerous, and dissimilar. The importance of understanding fully its pathology will be acknowledged when we recollect that it is very common, very alarming; that the pain originates from distension of the intra-cranial sinuses and veins; that it is symptomatic both of adynamic fevers and of those purely inflammatory, therefore requiring opposite treatment; and that it may end in what some call phrenitis, one of the rarest of the phlegmati. How often, in adynamic fevers, which are always ushered in with passive congestive headache, has reaction been checked, and a fatal termination been the consequence, from the loss of even a few ounces of blood, injudiciously prescribed to relieve a symptom erroneously supposed to be a precursor of effusion.

Cause.—The immediate cause of the headache is distention of the intra-cranial veins, the blood having receded from the surface in consequence of a chill or rigor. Hence it is one of the earliest symptoms in all adynamic and most of the inflammatory fevers, in the exanthemata, and also in the cold stage of ague. It is the headache of those exposed to severe cold; and this exposure, when prolonged, induces that tendency to sleep (coma) so fatal if not resisted. When cold bathing is injudiciously prescribed, especially to weak and delicate subjects, or to anæmic females, this form of painful headache is the consequence, commencing sometimes even before they leave the water. The passive congestive headache is also the headache induced by the

depressing passions, by mephitic vapours, by the inhalation of carbonic acid gas in crowded rooms, by intense mental occupation, or by tight stocks. The headache complained of in diseases of the heart or lungs, when the circulation is much impeded, is attributable also to congestion. The weak and delicate, being least able to resist the effects of cold, are therefore more obnoxious to congestive headache, and hence the anæmic is often replaced by the congestive. Phrenitis may of course be preceded by congestion, but it is a phlegmasia very rarely encountered, unless from injury or disease of the cranial bones. This assertion may be considered rash; but during a long practice, and sufficiently extensive to hazard a medical opinion, I think time will confirm its truth. Concussion of the brain is a temporary passive congestive headache.

Diagnosis.—The headache is sometimes a solitary affection, or rather other symptoms are disregarded. A tensive pain, as if the cranium were too small for its contents, is felt, but not referrible to any defined part of the head; the pain is constant, increases in the recumbent position, and hinders sleep; is exasperated by exercise, mental occupation, *and, if reaction has set in*, by stimulants. The headache may continue a week or two without any other well-marked symptom. If the headache be the result of a blow or exposure to cold, and it be not relieved by reaction in two or three days, the pulse becomes slow, the heart labours, the surface is chilly, the countenance pale, the appetite fails, the gait is unsteady, and there is a confusion of ideas. These symptoms, when combined, are seldom of long duration; and if the congestion be not relieved by epistaxis or medical treatment, it will end either in coma or reaction when the phenomena change. Coma need not be described. In reaction nausea or vomiting are primary symptoms, the pain of the head becomes more severe, the face flushes, the eyes are suffused, the pulse quickens, the skin becomes warm, the tongue white, the desire for food is lost and replaced by thirst. Fever is now present, what Cullen termed synocha, and the treatment cannot be misunderstood. Concussion of the brain, when followed by reaction, admirably illustrates the above history.

When this form of headache is the prelude to fevers of the adynamic type, and before reaction commences, most of the following symptoms co-exist, all also denoting a retrocession of the blood from the surface to the deep seated veins;—a chilly surface; lumbago, from congestion of the deep-seated spinal veins; nausea, from cephalic congestion; præcordial oppression, from distension of the right side of the heart, and, as a consequence, a slow, labouring pulse. In the exanthemata, either from the intensity of the poison, or from a peculiar constitutional debility, their invasion is occasionally attended with delirium and that of small-pox, frequently with convulsions. Similar symptoms are said to be occasionally witnessed in rubeola, but in scarlatina the poison is sometimes so powerful and depressing that within twenty-four or thirty-six hours from the seizure, death is the result, reaction being overpowered. In such diseases, and especially

in typhus gravior, our principal aim should be to hurry on reaction, for if we succeed early, the danger is much diminished. In adynamic fevers, the failure of reaction is more to be dreaded, and its failure is more dangerous than in those of the inflammatory type. Hydrencephalus of the non-tubercular form has its history and treatment, as a passive congestive headache, where perfect reaction fails. It is this form of hydrencephalus which is occasionally cured, and no doubt the cures would be more frequent were the diagnosis more exact; but it is sometimes mistaken for infantile remittant fever until the overloaded veins and sinuses relieve themselves of the watery parts of the blood by effusion into the ventricles, and lessen the chances of relief. It would be a worthy task to write a short treatise on the curable and non-curable form of hydrencephalus.

The *treatment* must depend on the cause. The length of time the headache has existed must also guide us in selecting remedies. If it follow cold bathing, or exposure to cold otherwise, and if not more than twenty-four hours in duration, the production of reaction as speedily as possible is the undeniable plan. For this purpose the sufferer should go to bed in a warm chamber, and be well covered with bedclothes; a large glassful of mulled wine or hot spiced ale may then be taken, and, if necessary, repeated, a few hours elapsing. If the headache persist, and the skin be cold, an emetic of fifteen or twenty grains of ipecacuanha should not be neglected, for the act of vomiting forces the blood to the surface, and experience has taught us that the headaches of the primary stage of fevers, or of the cold fit of ague, are frequently removed by spontaneous vomiting, forcing the blood to the skin, and inducing diaphorsis. Should perspiration be still delayed, diaphoretics composed of acetate liquor of ammonia and spirit of nitric ether should be freely exhibited together with white-wine whey, until they act freely, which usually terminates the pain of the head and the danger of synocha. If, however, reaction be delayed for several days, we have to apprehend one of two effects—coma, or fever. The former is by far the more dangerous. Although in diseases of the head there is a prejudice against hot baths, yet they may be prescribed in these cases with confidence; but if objected to, the hot-air bath may be substituted. In addition, a blister to the nape of the neck, and sinapisms to the calves of the legs. Leeches to the temples, and the scarificator to the nape of the neck, is, in these cases oftentimes ordered without due discrimination. If the skin be warm, they may relieve; but where the skin is coldish and the pulse weak, to say the least, they are uncertain; but as nature sometimes relieves these headaches by epistaxis, she may be imitated safely by applying two or more leeches to the septum narium, about half an inch above the nares, with the aid of a curved leech-glass; the application is easy. As the bleeding which follows is sometimes very profuse, especially in children, a second leech need not be applied until the bleeding from the first has ceased. This method has many advantages; it is the most cleanly and the least troublesome, as, to

encourage the bleeding, it is sufficient to hold the head over a bowl of hot water; it leaves no marks, a matter of some consequence when young females in the higher classes of life are the patients; it relieves the head at the least expense to the sanguiferous system, for there is very little communication—although opinion is otherwise—between the vessels of the scalp and those of the brain; while the mucous surface of the nose has a direct communication with the longitudinal sinus. The transition to reaction sometimes takes place without relief, and is so gradual that it is difficult to decide on the exact moment for depletion; but if the surface is warm and the face flushes, the difficulty ceases. The headache continuing after reaction is fully established constitutes fever. We now know what to do. Twelve or fourteen ounces of blood should be taken from the arm in the upright posture, saline purgatives prescribed, low diet and mental quietude rigidly enforced. If the headache be not relieved, small nauseating doses of tartar emetic are very valuable, and we are not justified in withholding mercury, and it ought to be given until there is tenderness of the gums. This is one of the fevers (synocha) which so many physicians have remarked yield on the appearance of salivation. The application of cold lotions to the head are useless, perhaps injurious, in simple congestive headache, before reaction, for the effect must be to repel the blood from the external vessels. This form of headache rarely continues a month without producing mischief. If the headache be the consequence of a blow or fall, it must be treated actively as soon as the depressing effect of concussion ceases; if nausea or vomitting succeeds, and the skin be hot, we may be certain that inflammation of the cranial contents is in progress.

The exanthemata and adynamic fevers commence with this form of headache, and for several days it alone is complained of. The hurried, slovenly practitioner overlooks the cause, and irreparable injury may be done by the loss of even a few ounces of blood; venesection to any extent is almost fatal, and even local bleeding jeopardizes the recovery of the patient; for to the congestion we have added a poison depressing the heart's action, and still further impeding reaction, which the additional cause of loss of blood renders almost impossible. How many cases of typhus gravior have I seen terminate unfavourably, solely, I may venture to say, from the application of ten or twelve leeches to the temples, to relieve the intense headache of the very early stage. The proper remedy at this period is the exhibition of an emetic of ipecacuanha, to which may be added eight or ten grains of sesquicarbonate of ammonia. The treatment of these diseases does not enter into my remarks on headaches. Their invasion is sometimes so violent that convulsions attend, but convulsions do not foretell so dangerous a form of exanthemata as when we find a child after a few hours' illness become insensible, speechless, with a very weak pulse, and a cold surface. These symptoms are more common from the poison of scarlatina than from any other; all those so affected have died within thirty-six hours of the attack, no matter

what remedies were employed, except one treated by galvanism. The symptoms were very properly regarded as congestion in the most intense form without the power of reaction. The electro-galvanic battery was employed exactly as it is for the congestion of those poisoned by opium; a flexible tube was afterwards passed into the stomach, and port wine and ether introduced, and also friction to the surface, with hot dry flannel cloths. In alluding to the treatment for the coma which follows exposure to cold, the necessity of employing this powerful remedy was omitted. There is also another remedy for the simple congestive headache, which should not be despised, although it is constantly employed by empirics; it is popularly termed "traction," or dry cupping. Those who have never seen it employed cannot imagine what a powerful effect it must have when used in the following manner. The back of the neck, between the shoulders, and, if deemed necessary, even down to the loins, is smeared with spermaceti ointment; the exhausted glass is then fixed; it moves with the greatest facility over the anointed surface, acting powerfully on the cutaneous blood vessels, leaving every portion of the skin over which it has travelled of a vivid redness. Dr. Graves speaks highly of it in his last-published work, as applicable to the hysterical (congestive?) headaches of females.

The only difficult in treating this form of headache is when it has existed for several weeks without the attending fever; for when once fever appears it ceases to be recognised as a mere variety of headache. —*Ibid, April* 1.

Enucleation of Corns.—

By Frederick James Brown, M. D.

I am desirous of making known to my professional brethren a very simple operation for the removal of corns. It has long been known that a corn can sometimes be picked out, and that freedom from the complaint ensues. The method that I advocate is the same, with the preliminary step of a vertical incision, to the full depth of the indurated cuticle, at a marginal line surrounding the corn.

I accidentally discovered the method in my own person, and I feel so thankful for the relief that I have obtained that I consider it to be my duty to state the particulars to the profession.

In 1851, a corn formed on the pulp of the index finger of my left hand, as a direct consequence of practising upon a violin. Its size was about three-twelfths of an inch long, and one-twelfth wide. I must acknowledge that the situation of the corn was evidence of my inattention to the injunction of the music masters,—viz., to press the strings with the tips of the fingers, and not with the pulp. Violinists usually have corns at the tips of their fingers.

The corn was a source of annoyance to me, and interfered with the use of the finger. Some months after its formation I applied to the corn a piece of lint covered by simple ointment, and kept the lint to the part day and night. After a few days I noticed that there was a slightly-raised line of cuticle surrounding the corn, making it apparent that the latter was set in a depression as is a stone in a brooch. I carried a penknife in a vertical direction in the groove betwixt the raised line of cuticle and the corn. At one spot, a drop of blood appeared, and gradually became diffused beneath the corn. Next day the corn dropped out, leaving the true skin perfect, with the wavy lines of the finger in a normal condition, and covered by cuticle in a natural state. The cup-like depression ceased to be apparent after a short period.

This case clearly shows that a corn produced by repeated pressure of the finger against a violin-string consists of indurated layers of cuticle, placed upon moral cuticle, and seated in a cup-like depression of the cutis vera.

A few weeks back I operated on a friend who was suffering with a corn on the great toe, in the usual situation of a bunion, which it closely resembled. In this case I used no ointment, but passed a penknife vertically around the corn, for the full depth of the indurated cuticle, in the situation of the marginal line (which from pressure and dryness was scarcely apparent). The next step consisted of lifting out the corn by evulsion, or rather by a process of enucleation, aided by a few touches of the knife. The true skin was not wounded, consequently there was no effusion of blood. After the corn was taken out, a minute one was found beneath the situation of the larger corn, and it was removed in a similar manner.

This is all the experience that I have had in corn-operations, but I advance the method of enucleation as one that is effectual, simple, and unattended by much pain.—*Ibid, April* 15.

Case of severe Pneumonia.

A man, twenty-one years of age, said to have been of delicate constitution, was seen by Mr. Martyn on the 8th March, 1852, having then been ill nine days, not wholly without treatment, but the true state of the patient apparently not recognised. He now presented all the signs of pneumonia, general and physical, and in an extreme degree, the right side being wholly without natural respiration. The constitutional distress was very great, the patient being unable to lie down, or to turn in bed. "His countenance was flushed, puffed, and anxious; skin hot and dry; respiration sixty in a minute; pulse 120; with great pain in the right side, and incessant short cough, with scanty, red expectoration. He expressed great exhaustion, was restless, and dull, and indifferent to his situation. "His life seemed

absorbed in the labour of breathing and coughing." Mr. Martyn was deeply impressed with the marks of want of power presented by this case, which forbad the employment of antiphlogistic measures, lest even a slight shock might precipitate the patient altogether. The following plan was prescribed :—one ounce and a half of sherry wine every two hours, and good broths and milk. Sesquicarbonate of ammonia, five grains ; potassio-tartrate of antimony, one-sixth of a grain ; nitrate of potash, ten grains ; spirit of nitric ether, twenty minims; water : make a mixture, to be taken every two hours ; also a pill, containing three grains of calomel, and one of opium, in the morning and at bed-time. A large blister was applied to the chest. The following day the respirations had fallen to forty-six in the minute, pulse 110 : the exhaustion was still fearful. To continue the plan, substituting chloric ether in the mixture for the nitric ether, and one dose of calomel and opium at bed-time. He had a second blister on the following day, and went on slightly improving, except that he had scarcely slept at all. But little other change took place till the 12th, when some degree of pneumonia was detected in the left side, the exhaustion being still very great, and the pulse more than 100. A third blister was applied, and the wine and other nourishment continued with little interruption. His improvement was progressive, although many weeks elapsed before his recovery was perfect. He has since been as well as ever. This case appeared to the author to be suggestive of some such reflections as the following : From how very extensive and grave an inflammation of the lungs a patient may be rescued, whilst in another a much less degree will destroy life. Here was a case, in which the whole of the right lung was affected throughout, even to dulness on percussion ; and the left to some extent, posteriorly and below, was dull, and characteristic small râle existed in it, and life was carried on at the labour of sixty respirations in the minute. To keep the patient going, some active plan was demanded, and stimulants appeared to present the only hope. This was the second and chief point to which Mr. Martyn wished to draw attention. He thinks the case goes far to establish that stimulants do not necessarily disagree with, and aggravate all cases of pneumonia, and that it is confirmatory of the observations of some of the best authorities, on the high value of stimulants in some grave forms of inflammation. Upon the whole perhaps, especially in inflammation of the chest, most men would be shy of stimulants. But in the case now related, not only were they borne well, but seemed directly to refresh and relieve. At the outset of inflammation, especially of the chest, stimulants may be uncalled for, but it does not follow that the opposite plan is to be unduly persisted in. The time comes, in all cases of some duration, to regard the wants of the system. The general nutrition of the body must be attended to ; we dare not exclude any element of food essential to the economy for many days together ; the vital forces soon suffer. In conclusion, Mr. Martyn enquires, have not the present generation of medical men been taught too much the *material treatment* of disease—too much that *drugs cure*—that Nature must wait

upon them; and that the cure of inflammation in British practice, had come to mean bleeding, mercury, and such treatment? But, at the same time, who had not seen that in many cases the remedies had proved worse than the disease?

Dr. Aldis exhibited the head of a newly born child, with a deformity of the mouth and nose, consisting of an entire absence of the palate, and the septum of the nose prolonged into a rounded tubercle of the size of a raspberry.—*Ibid, April* 29.

Idiopathic Trismus and Opisthotonos; Effects of Chloroform.

(Under the care of Dr. CHAMBERS)

Idiopathic tetanus is an affection of very rare occurrence, its pathology being, however, just as obscure as when the complaint is brought on by traumatic causes. We have had but very few idiopathic cases to bring before our readers; but among these we would mention one which was treated by Dr. Gull at Guy's Hospital. Here no tangible cause could be laid hold of, no protracted exposure to wet and cold, no depressing agent lowering the tone of the system. The only point of the history which could be connected with the tetanic seizure was an attack of scarlet fever which the patient had suffered two years previously, and a subsequent derangement of the throat. In the case which we have this day to report, the ætiological part is much clearer, for the patient had "overworked himself in a damp gravel-pit, without attempting to change his wet clothes."

As to the treatment, there is also in the case at St. Mary's a feature of some interest, as Dr. Chambers employed chloroform to moderate the spasmodic symptoms. As several instances are recorded of the beneficial effects of the inhalations of chloroform in traumatic tetanus, it was natural that the anæsthetic agent should be tried in an idopathic case. The results, as will be seen below, were momentarily favourable; and it is hardly possible that it should be otherwise, considering the highly sedative powers of chloroform. But it is plain that none but transient advantages can be expected from its administration, and it will moreover be perceived, by the following details, that a certain amount of risk is incurred by using chloroform with patients whose spinal marrow is in a morbid state. Mr. Trotter, the resident medical officer, to whom we are indebted for the notes of the case, and who administered the chloroform, suspected that the mercury, under the influence of which the patient was at the time, might have had some share in the alarming symptoms. We may perhaps beg our readers to cast a glance at a few introductory remarks with which we prefaced Dr. Gull's case; they will not be found irrelevant, and may be said to apply with full force to the following instance of idiopathic tetanus:—

G. L——, aged twenty-five years, single, a labourer in a brick-field, was admitted into St. Mary's Hospital, under the care of Dr. Chambers, Dec. 15, 1853. It appeared that the patient had always had good health; in fact, he did not remember having suffered from

any illness, except syphilis sixteen months prior to his application here, no soreness of mouth being at that time produced by medicine. Previous to the present attack he considers that he had overworked himself; that he had, at the same time, to stand in a damp gravel pit, often got wet, and kept his damp clothes on his back. His illness commenced one month before his admission, and to come to the hospital he was brought twelve miles in an open cart. From this uncomfortable kind of travelling, he was quite cold and collapsed when admitted,

The previous treatment had consisted of baths, enemata, aperients, &c. &c. The man at first only felt pain in the back and across the loins, which was, however, so severe as to compel him to leave his work, and on the following day he was unable to turn himself in bed; he felt his jaws stiff, and had difficulty in opening his mouth. All these symptoms happened without any decided pain, except at times slight uneasiness about the articulation of the lower jaw; but the patient has had continued pain in the back along the spine. On examination, it is found that he swallows well when food is placed into his mouth. *When moved sharply,* he feels as if his breath were gone. The man never experienced any difficulty in micturition. Bowels costive; there is but little sleep, but it is difficult to account for this, as the patient says the pain is not severe nor continued enough to prevent rest. He now complains most of pain caused by lying in one position, as he is unable to move himself, except slightly, by drawing up his legs and pressing with the soles of his feet on the bed. The body rests on the shoulders and nates, the intervening parts being curved forwards; there is a sensation as if something tight was drawn across the shoulders; no priapism; no wound can be detected except an old sore over the left tibia of nearly three years' standing, and slight abrasion over the upper part of the cæcum from the pressure of lying on it; the man can move his legs and arms, but is unable to raise the latter to the top of his head; he can open his mouth to half-an-inch; the masseter and other muscles attached to the lower maxilla are hard and tense, those on either side of the spine and in the abdominal region are in the same state; tongue and gums red; pulse 56; teeth on the left side excavated by the tube of the pipe; no albumen in the urine.

Dr. Chambers ordered vapour-baths, small doses of calomel and opium, and pillows to be so arranged as to take off some of the pressure.

On the third day after admission the patient was placed under the influence of chloroform during the stage of excitement; the rigidity became much increased, but when fairly narcotized the stiffness gave way, and he sank quite flat on the bed, and soon afterwards fell into a sound sleep. Continue the medicine.

Fifth day.—Pulse 92; muscles as rigid as ever; when placed on his feet, however, the man can walk; appetite good; bowels open. He was now again put under the influence of chloroform.

Sixth day.—Chloroform used again ; much tremor observed during the stage of excitement. The patient slept afterwards, and on walking tried to get out of bed, and fell on the floor.

Seventh day.—Mouth slightly affected from the pills. Stated that he would rather not have chloroform to-day. When Mr. Trotter began to make him inhale the anæsthetic agent, the pulse got very slow, then the man became insensible, but much sooner than usual. After this the pulse turned very weak and scarcely perceptible, irregular and intermitting, and at length disappeared altogether. On applying the ear to the heart, Mr. Trotter perceived at about every sixth beat a *very prolonged* first sound, but no second. The rhythm of breathing was, however, not affected. Ammonia was applied to the nostrils, and the chest smartly "*flipped*" with a towel, the end being moistened with water ; this appeared to awaken his dormant powers, and he soon came round, though the heart's action was irregular for some time afterwards.

The patient was now placed on full doses of extract of belladonna, and when the specific effect was produced, they were left off, without any decided amelioration of the symptoms. He was now left without medicine for a few days, no change of symptoms being in the meanwhile noticed. The belladonna was now resumed, and on Jan. 4th, 1854, nineteen days after admission, the notes are as follows :—Pulse 84, regular ; can get out of bed and walk about, but is unable to flex his back ; opens his mouth one inch. Muscles of the left side of the spine normal ; those of the right still rather rigid ; abdomen much softer ; some difficulty in getting the right hand to the top of the head, but none with the left.

Dr. Chambers now ordered a liberal diet, and the compound iron mixture, with tincture of valerian, thrice daily.

The patient remained in the hospital till Jan. 11th, being almost a month since he was admitted. There was only *slight stiffness* in the back, and *a little difficulty* in raising the right arm to the vertex. The sore on the leg broke out since he has been up and walking about all day, but he says he will not have it healed, as it is no inconvenience to him. He is well enough to leave, as he only feels weak, and thinks the fresh air of the country will put him all right.

Cases of Tetanus.—Treatment by Belladonna.

[Under the care of Mr. Eddison and Mr. Thomas Wright.]

For the particulars of the two following cases we are indebted to Dr. Sloane, one of the House-Surgeons to the Hospital.

Case 7.—Compound Fracture of the Forearm, requiring Amputation, with other injuries.—Acute Tetanus on the Seventh Day. —Treatment by Belladonna.—Death.—Elizabeth Riley, aged 31, of excellent health, the wife of a pointsman, was admitted on July 12, 1853, having been run over by a railway train. Her injuries were,

a shattered left hand, a severe contused wound of the left foot, the little toe of which was crushed, and bruises in various parts of the body. Mr. Wright at once performed amputation of the hand and of the toe, the stump being afterwards dressed with plaster in the usual way, and the foot placed in a large poultice. During the following days the patient seemed to do pretty well; but there was some sloughing of the edges of the wound on the foot, and inflammation of cellular tissue of the forearm. All the legatures had come away on the sixth day. On the 19th (seventh day) she complained of some stiffness and slight loss of power in moving her lower jaw; and, on the morning of the 20th, these symptoms had so much increased, that she was only able to open her mouth to a very small extent.

July 20.—Spasms occur occasionally, during which, for the space of about ten minutes at a time, the head is drawn backwards. She complains of but little pain, excepting during the act of swallowing. Pulse 132, feeble and soft. The bowels have been freely acted on by an aperient draught. She has taken half a drachm of laudanum, and is to have administered an enema, containing a grain of extract of belladonna, immediately, and afterwards repeated every four hours. In addition to this, the same drug is to be given in mixture in quarter-grain doses every three hours, the dose being doubled at each visit until effect is apparent.

July 21.—The discharge from the sores is of laudable pus, but sloughing over the arch of the foot has a little extended. She slept very little last night, and complains much of an aching heaviness behind the lower part of the sternum, which, every ten minutes, is exaggerated into a very painful spasm, attended by "twitchings all over her." Copious perspiration; pulse fuller and harder, 120; pupils not dilated; she swallows with difficulty, and is much troubled with mucus adhering about the throat. To take a grain of the belladonna every four hours; continue the injections, and have as much beef-tea and brandy as she can swallow.

22nd.—Between ten and eleven last night she became much worse, and Mr. White, the House-Surgeon, administered chloroform, which had the effect of inducing complete cessation of the spasms, and she afterwards slept quietly for upwards of three-quarters of an hour. The bowels are loose, and have acted twice during the night. The patient anxiously desires chloroform to relieve her sufferings, and, after its use, generally sleeps for about forty minutes; it is exhibited about every third hour. The teeth being now so firmly clenched that medicine cannot be given by the mouth, the belladonna is given solely by injection in two grain doses every two hours. The pupils are but slightly dilated; pulse 128, full and soft; inspirations 52 in the minute, almost constant; very painful diaphragmatic spasms; no opisthotonos. The urine contains a large quantity of pink lithates.

23rd.—About five yesterday evening sinking began; it increased through the night, and death took place at ten this morning. The

remedies had been perseveringly continued, and, within the last twelve hours, the pupils had become considerably dilated. As exhaustion increased, the muscles became less rigid, and the paroxysms less frequent; but the plaintive cries of the patient continued to manifest the pain she suffered up to the time of death. No *post mortem* permitted by her friends.

Case 8.—*Lacerated Wound of the Thigh.—Sub-acute Tetanus Supervening on the Fourteenth Day.—Free Employment of Belladonna.—Recovery.*—John Bilton, aged 19, a horse-dealer, healthy, of temperate habits, was admitted, under the care of Mr. Eddison, on July 21, 1853. The only previous illness of which any account could be obtained was, that two years ago, he had suffered from worms, of which he believed he had cured himself by eating raw carrots. On the day of his admission he had sustained a severe injury in consequence of his horse falling, a lacerated wound of crescentic form having been inflicted on the left thigh; a large flap of soft parts, including also the periosteum, had been torn up. The wound contained much sand and small gravel. After careful washing, its edges were brought together with isinglass plaster, and the limb placed in an elevated position in a trough.

He progressed favourably until August 4, (14th day), when he noticed a stiffness about his jaws, became unable to open his mouth, and had clonic spasms in the affected leg, commencing in the hip and passing down to the toes. These spasms recurred at various intervals, but, on an average, one every hour. He complained much that his throat was obstructed with phlegm; the sterno-mastoids were contracted, and in strong action.

Ordered: Extract of belladonna, half a-grain to be taken every two hours, and the dose gradually increased.

Aug. 8.—The symptoms have not increased in severity; he has generally slept fairly, and has not suffered pain, excepting during the paroxysms. The jaws are still fixed. He is now taking a grain of the belladonna every two hours.

12th.—Is much the same, and still subject to recurring paroxysms of tetanic spasm of the affected limb, attended by much pain. He has good appetite, but cannot eat, owing to the fixity of his jaws. The pupils are dilated; the pulse is still quick, but soft and compressible, 120; the bowels have acted freely; respirations hurried—28 in the minute. He is now taking a grain and a-half of the belladonna for a dose, and using three grains as a suppository, alternating the doses every four hours.

15th.—Much the same; respirations, 44; pulse, 120. The suppositories are omitted, but the mixture continued.

18th.—The wound looks better, and has begun to cicatrise in all parts since the 16th; the tetanic symptoms have much abated.

19th.—Sleeps much, and has had no spasms to-day; expression of countenance much improved; pulse, 84; respirations, 28; he now

protrudes his tongue well. The medicine is continued every four hours.

26th.—Is much better; no pain or cramps, but still cannot open his mouth wider than to admit one finger between the teeth. Pulse, 88; respirations, 32. To continue the medicine, taking the dose only twice daily.

29th.—To omit the belladonna altogether.

31st.—The pupils contract when stimulated by light, and do not appear inordinately dilated. The wound is healing.

Sept. 17th.—The wound is now almost healed, and he is made an out-patient at his own request, the only remains of the trismus being a little stiffness about the jaws.

These two cases are of great and rare interest, inasmuch as they exhibit the persevering trial of an almost uncomplicated plan of treatment, and, in this respect, we must beg to recommend them to the attention of those who are in the habit of trying either together or in rapid succession a great variety of drugs. There is no reason for believing that individual patients gain anything by the latter plan; while the loss to therapeutical science, and therefore to humanity in the long run, is very great.

The last case is very encouraging as to the effect of belladonna on the disease; and the first, if it shows no advantage, at least proves that the remedy may be freely pushed without risk. Respecting the recovered case, however, it must be borne in mind, that it was not one of the most severe form. Although its symptoms set in sharply and so early as the fourteenth day, yet they ran ever afterwards a chronic course, and scarcely, if at all, increased in severity. Did this arrest of symptom result from the prompt and early administration of the remedy? or was it, from the first, a peculiarity of the disease, and a mark of its mildness? On this point opinions will probably differ.

Dysentery, as met with in Hong-Kong.

He observed, that the chronic and subacute forms of the disease were generally found towards the end of the year, when the fevers of the country had abated, and among men who had suffered from the various types of remittent and intermittent fever. The symptoms both of the acute and chronic types were similar to those described as characteristic of dysentery elsewhere, the dejections being scanty, mucous, and muco-purulent, and, finally, consisting of a reddish fluid, with white shreds floating in it, resembling water in which raw meat had been macerated. During one period, the patients who had been removed to the Minden Hospital-ship suffered from dropsy,—a complication never observed among those men who had been treated solely on shore. With respect to the *post-mortem* appearances, he stated, that in only one case did he observe decided marks of gangrene of the mucous membrane of the large intestine; and, in that case, the symptoms ran their course very rapidly. The general appearances were, a dark colour, swelling and softening of the mucous coat of the

colon. In the more chronic cases, the colon seemed hard and thickened, and did not collapse when the abdomen was opened, and the lining membrane slate-coloured, hypertrophied, and in places rotten, the surface being studded with small depressions, giving the membrane the appearance of a piece of charred sponge. These appearances were strictly confined to the large intestine, for while the membrane covering the cœcal surface of the ileo-cœcal valve was affected, the disease was never observed on its other surface. He did not refer the above appearances to gangrene, because he never observed any perforation, because they never was present any of the fetor of gangrene, and because they were compatible with a considerable degree of health. He attributed dysentery to the injurious effects of sudden alternations of temperature upon the soldiers, many of whom were weakened by previous attacks of the remittent fevers of the place. The faulty construction and situation of the barracks conduced to render this cause more active, as the men, to avoid the heat of a small room, constantly slept out in the verandahs, exposed to the chilling influence of a cold wind which blew from the mountains at night. With regard to the complication of hepatic disease with dysentry, he never met with any hepatic abscess in any of these cases, and, with the exception of occasional congestion of that organ, he never noticed any other appearance. The treatment was conducted upon general principles, leeches, venesection, calomel, and opium being the chief agents employed in the acuter cases. In the more chronic cases, blue pill and ipecacuanha were generally given in conjunction with blistering and full doses of opium. In advanced stages of the disease, turpentine, opium, and camphor, and the mineral astringents, in many cases, afforded much relief. In conclusion, he advised change of air on land, in preference to a sea voyage, as productive of much good in many cases, and in the administration of calomel, recommended the exhibition of large doses of the remedy in the early stage.

Dr. Cahill remarked upon the prevalence of small-pox at the present time, even among the vaccinated; and observed, that as the disease had yearly been becoming more prevalent, he feared it might become epidemic again, in spite of vaccination and inoculation. He urged the necessity of upholding the system during the suppuration of the vesicles, and remarked upon the danger of treating the secondary fever with the same antiphlogistic remedies as we might the primary, and recommended a solution of nitrate of silver (twenty or thirty grains to the ounce) to the face, in confluent cases, to arrest the cutaneous inflammation, and to prevent the occurrence of scars. He remarked also upon the absence of boils and abscesses in those cases where nourishment and stimulants had been freely given at an early stage.

Dr. Aldis exhibited the brain of a child, aged 7, who had died from acute idiopathic arachnitis. There was a very extensive effusion of coagulable lymph, and much congestion of the brain. The duration of the disease was about four days.

Hydrocotyle in Leprosy.

I mentioned in my first letter that twelve lepers were under treatment—the number has now increased to fifty-seven. In all these cases, without exception, the progress of the disease has been arrested. Thus young persons, who, under the influence of the disease, had become dull and unfit for anything, who felt as if an enormous weight was attached to their legs, found themselves lighter, and their gait more free, &c. But in the forty patients more advanced in years, and especially those whose constitutions had been affected by the use of mercury and arsenic, the improvement both interior and exterior has been the most remarkable: frightful gangrenous sores have been cicatrised, the spots in the skin are less marked, and the skin itself has become more supple and firm, and has recovered its sensibility. Dr. Boileau recommends—1. That the patient shall take baths containing three pounds of *Hydrocotyle asiatica* in its green state, or vapour baths prepared with five pounds of the same. 2. That an emetic shall be taken at the commencement with occasional doses of aperient medicine during the course of treatment. 4. After this preparation the patient may take the hydrocotyle in powder as well as in the form of drops; the latter in doses of from one to eight spoonsful.—*Pharmaceutical Journal.*

Simulation of Hip-Joint Disease.

[Case under the care of Mr. PAGET.]

A little girl, aged 3 years, was recently under Mr. Paget's treatment at this Hospital, whose case was instructive, on account of the close simulation of a very serious disease. She had been observed to limp in her gait for ten days, and complained of pain about her left hip. On examination, the left buttock appeared flattened, and the whole hip thrown slightly outwards. When told to bend the thigh, she carefully held the left femur stiff, as if a-piece with the pelvis, and moved pelvis and all on the sound leg; yet it was found that, on jarring the foot, no pain was produced, nor was there any tenderness over the back of the joint, or on striking the great trochanter. If done gently, the thigh might also be bent without eliciting any complaint. These latter circumstances seemed to militate as strongly against the idea of joint disease as those previously mentioned did for it. In the groin were found, on further examination, a cluster of enlarged and very tender glands, the slightest pressure on which made the child cry. As it was plain that these must be irritated in every movement of the hip, Mr. Paget thought it probable, that the very deceptive symptoms just mentioned might be solely due to the instinctive efforts of the patient to keep them at rest, since, by such effort, the thigh would be carried away from the pelvis, and the appearance of flattened buttock caused. This diagnosis was confirmed by the result, since the child quite recovered in about ten days. The treatment had consisted in confinement to bed, and the application of a few leeches and of poultices over the engoged glands.—*Medical Times and Gazette, April* 1.

THE
MADRAS JOURNAL
OF
MEDICAL SCIENCE.

"I hold every man a debtor to his profession from the which as men doe seek to receive countenance and profit, so ought they of duty to endeavour themselves by way of amends to be a help thereunto."—Lord Bacon.

Original Communications.

An account of the Dysentery as it appeared at Prome, &c.

In the following account of the Dysentery that prevailed among a portion of the European Troops belonging to the Force employed in the late operations in Burmah, I regret that I am unable to give more than a general view of the disease as it appeared at Prome and Shoé Dagòon, and a summary of the remedial measures that appeared most beneficial. I am indebted to memory for the chief particulars.

The disease as, it prevailed in these places, was, what is generally termed "Homorrhagic Dysentery." The symptoms first complained of were those usually found in the same disease in other places, except that, from the commencement, the alvine evacuations were generally green, hot and scalding, with much blood and a smaller amount of mucus than is generally observed. There was also a good deal of pain, fulness and bearing down at the rectum—and the pulse at this period was quickened, rather full, with some degree of fever, headache and thirst. The urine was small in quantity, frequently voided and passed with pain, the state of the bladder sympathizing with the rectum. These symptoms were of short duration and were quickly followed by the principal feature of the complaint viz.

the ulcerative stage, marked by the change in the evacuations, which became more frequent, copious, bloody and offensive, resembling the washings of meat, followed by extreme prostration—dry skin—dry tongue, covered with a dark brown fur, weak and accelerated pulse.

As the disease progressed, the motions became more fluid and mixed with black sloughs, having a cadaveric smell—the pulse small and intermitting—cold sweats—followed by cessation of all pain, singultus, and death shortly after.

In the cases where a post mortem examination was made, nothing remarkable could be detected from the ordinary cases of the disease, except the gangrenous character of the ulcers, which were deep with ragged edges, and invariably covered the inner surface of the large bowels, not unfrequently penetrating the peritoneal coat.

A circumstance worthy of remark in the disease, as it prevailed in Burmah, was, its generally rapid progress, from 3 to 8 days usually; sufficed for it to run its whole course, terminating more frequently than otherwise in the death of the patient. In those, however, who escaped the immediate and generally fatal termination of the disease, a long lingering convalescence followed, in the progress of which, other sequela manifested themselves, so that by these multiplied causes, the poor sufferers, now entirely prostrated—only chance of recovery being a return to India and finally of becoming Invalided.

Another feature characteristic of "Burmah Dysentery," was the excessive amount of biliary matter secreted by the Liver, and which continued throughout the disease—the acrid and irritating quality of which augmenting the sufferings of the patients considerably.

The treatment generally adopted on admission, was, the exhibition of the Hydrag c. creta, in 3 grain doses, with 5 grains of Dover's powder and 1 of Ipecac. every 3d hour—the frequent application of fomentations to the abdomen—anodyne enemata with grains ten of the sugar of Lead and Hip-baths; Leeches

and Blisters—particularly the former when applied to circumani. But when the motions became like the washings of meat, Quinine in 3 grain doses with one of opium was given every 2d hour—continuing the local applications as before. In some few cases where the hœmarrhage from the bowels was more than usually great, sugar of lead in 2 grain doses with $\frac{1}{2}$ of opium was given with good effect, every 2d or 3d hour as well as the nitric acid with Tinct. Opii: but from what I have seen, I should say, that nothing appeared to do more good than the quinine and opium—as in several cases it appeared to stop the progress of the complaint, when all other remedies failed.

It should be remarked, however, that Cholera and Fevers were raging at the same time, and it is probable, that some relation existed between these diseases, and that they had one common origin—these several forms of disease, being influenced by the idiosyncracies of the individuals who became the subjects of them, as it was found that the Quinine exhibited either in Dysentery, Fever, or Cholera, frequently had the effect of arresting the progress of the complaints when everything else proved unavailing.

Short Notes on Physiology, from Dr. Smith's Lectures—Contributed by a Student.

The sounds of the Heart,—the order in which they occur,—the state of the Heart during the stages of the Rhythm, and the causes of these sounds.

The sounds of the Heart are the following:—

First—*A long, dull sound*—and secondly *a short, sharp sound.*

When the *second* sound terminates, we have a *Pause*—and after the pause the *first* sound is again repeated.

If we divide the time occupied by these sounds into four parts:—the *dull sound* will occupy *two* parts, and the *short sharp sound* will occupy *one* part:—the *pause* following these, will occupy the remaining *one* part.

Order of action of the Heart.	*State of the several parts of the Heart.*
1st. A dull sound,—occupying two parts,—is synchronous with the contraction of the ventricles.	Ventricular systole. Tilt of the Heart. Spiral turn. (Pulse at the wrist.) Auriculo-ventricular valves shut. Semilunar valves open. Auricles filling.
2d. A short sharp sound,—occupying *one* part.	Semilunar valves stretched. Ventricular diastole. Auricles filling. Auriculo-ventricular valves open.
Pause—occupying *one* part.	Auricles distended. Ventricles filling. Ventricular diastole complete. The pause is ended by the auricular systole. Ventricular systole, and *first* sound again.

Causes of the sounds of the Heart.

The first sound has three causes—one major and two minor causes :—

1st. (Major cause)—Impingement of the blood against the auriculo-ventricular valves.

2d. (Minor cause)—Egress, and friction of the blood in passing thro' the Pulmonary actery and aorta.

3d. (Minor cause) muscular contraction of the ventricle.

The second sound has two causes :—

1st. Rapid stretching of the semilunar valves.

2d. Falling back of the blood on the semilunar valves when stretched.

During the Pause no contraction is going on anywhere, and it is ended by the auricular systole, which is *unattended* by sound.

It was supposed for a long time that there was a sound produced by the contraction of the auricles,—and M. Laenec was of opinion that the second sound depended on auricular contraction; his opinion however has been proved to be incorrect, for if the *second* sound were produced by the contraction of the auricles, it would precede the *first* sound—and again, during the second sound the auricles are expanding.

MADRAS JOURNAL OF MEDICAL SCIENCE.

AUGUST, 1854.

Mr. SHORTT, late an Assistant Apothecary on this Establishment, now in England, who recently obtained the degree of M. D., after being admitted a member of the Royal College of Surgeons, has been appointed by the Hon'ble the Court of Directors an Assistant Surgeon on this Establishment, and may be expected, we presume, by the next Steamer.

With this fair and excellent example before us, we trust some other enterprising characters will be found, who, by their zealous services and ability, may deserve and obtain promotion and that the Medical Board, who are the Guardians of the Subordinates, will use their advocacy in promoting their *worldly prospects* as they have ever shewn themselves attentive to their professional advancement.

It is with deep regret we have to announce the death by Dropsy, of Mr. Pensioned Apothecary James Anthony Purcell, which event took place at Royapooram, on the 16th August. Mr. Purcell had for many years practised with great reputation, and upon retiring from his profession took up his residence at Madras, where his amiable disposition and his many public and private charities won for him the affection and respect of both rich and poor.

We think it desirable to place before our readers the following letter of "*A Sufferer*," which we extract from the *Athenæum*, as no doubt, it will be read with interest :—

To the Editor of the Athenæum.

"Sir,—From your able advocacy of all measures calculated to improve the social and moral condition of all classes of persons, I am emboldened to solicit your consideration to the condition of the Medical subordinates and to enlist your sympathy on their behalf ; with this view I send you a brief chapter of the grievances which chiefly affect them, and will feel obliged by your giving it your generous support.

The 5 Senior Apothecaries on the list are on the receipt of the superior allowances, 250 Rupees, granted to them in G. O. G. 20th January 1846, the first of them is of 42 years standing in the service, they are meritorious men, of ability and probity, and yet not one of them holds the office of a Deputy Medical Storekeeper, a situation for which they are well qualified but which is now held by Medical Officers who have generally three or four other appointments, and who are necessarily obliged to look to *the* Apothecary for the entire performance of the duties connected with the Medical Depôt.

The Government were informed, says a letter in the Madras Medical Journal for February, but by whom the writer does not aver, that the charge of a Mofussil Medical Store could not be given to Medical subordinates this, to say the least of it, is uncharitable and ungenerous, and is the unkindest cut of all if emanating from the Board, the bulwark that should be of our department.

Out of 39 Apothecaries on the Army list, one receives an extra allowance of 70 Rupees at the Presidency Medical Stores, and another of 50 Rupees for being in medical charge of Kotagherry ; six other Apothecaries are in medical charge of Civil and Military Stations and establishments, for which they do not receive a fraction beyond their bare pay and allowances.

Out of 187 Assistant Apothecaries, two receive a staff salary of 15 and 20 Rupees at the Presidency Medical Stores, and one of 30 Rupees for being in charge of Coonoor ; 15 are in medical charge of Stations and establishments, Civil and Military, for which they receive no additional remuneration, but of all the Subordinates in the service none claim more the consideration ofGovernment than those employed in Superintending Surgeon's Departments, on account of the constant marchings they are subject to without any additional remuneration, and the consequent pecuniary embarrassments to which they become liable. These subordinates when within 200 miles receive the same pay and allowances as their brethren holding fixed situations within the same range, and when ordered on command duties, they receive but only

according to the number of days absent on such duty, the difference merely between half and full batta, which is—

For an Apothecary.....	Rs. 30
2d Apothecary.....	„ 30
Assist. „	„ 15

This indulgence, however small and inadequate to meet the incidental expenses of travelling with military details within 200 miles, is denied to them when attached to divisions beyond 200 miles from the Presidency, where all Warrant Officers are placed on Full Batta ; the departmental subordinate, although constantly called throughout the year to proceed in various directions, often with little warning, in charge of sick and other details, or for the relief of others similarly situated as himself, does not receive for such duties any remuneration beyond the pay and allowances which the subordinates enjoy, who hold fixed appointments within the same division, such as in the Medical Stores,—Regimental and Station Hospitals. The necessity for keeping a Horse and a light camp equipage, for immediate service, is rendered imperative on subordinates of this class, and who thereby are obliged to incur monthly, expenses much more than others not so situated, besides having to provide for a large family, and the maintaining of two establishments which a separation from Home invariably demands, then there are the servants who claim batta for travelling, the coolies to pay for by the month, for the conveyance of at least 2 boxes, bedding, table and chair, (a cot and tent would be out of question,) and the increasing prices on the march, according to the nature of the season or the peculiarity of the country through which one has to travel, of all the common necessaries of life, these and many more demands that unavoidably happen, render it impossible for a subordinate in the Superintending Surgeon's department, to keep out of debt, unless aided by other resources than his own salary or perhaps, when not encumbered with a family.

The G. O. G. as per margin entitles Medical Subordinates to head money under a particular reservation, and it is quite problematical whether any Subordinate in the Madras Medical Service can avail himself of the provisions of that order, an instance which annuls this hope is here given.

Fort St. George Gazette, 20th Nov. 1853.

No. 250. The Right Honorable the Governor in Council is pleased to extend the provisions of the subjoined General Order by the Commander-in-Chief in India, dated Simla, 13th Sept. 1853, to the Madras Army.

The Commander-in-Chief announces for general information that the Most Noble the Governor General in Council, has been pleased to resolve, that when Subordinate Medical Officers are in receipt of only the ordinary rate of pay for a Medical charge they shall, if entrusted with an additional charge, receive "head money" for such extra charge ; but when they are granted a

The Assistant Apothecary in medical charge of Condapilly, presented an abstract

superior rate of pay for their medical charge, all duties which they may be required to perform shall be discharged by them without extra remuneration; and further that the same rule is applicable to Assistant Surgeons in medical charge of Corps in the Contingent forces who receive the superior Staff salary of full Surgeons, and who in consequennce are not admitted to "head money" when the extent of their charge is increased.

after the promulgation of the above order, for head money amounting to the trifling sum of Rs. 7 As. 6, viz.,

	Rs.	A.	P.
Head money for 5 Sepoys of different Corps for 31 days	0	10	0
Do. do. for 54 Europeans and Natives of the Details of 8th Regt. N. I.....	6	12	0
Total.....	7	6	0

The abstract was returned with an intimation from the Military Auditor General "that as the "Assistant Apothecary is appointed to the "medical charge of the station of Condapilly it is part of his ordinary "duty to afford medical aid to all Details stationed there, as well as to "Europeans and Native Soldiers arriving there on leave, he appears "therefore to have no claim whatever to head money under the G. O. "G. referred to which is applicable to subordinate Medical Officers "only when entrusted with a charge extra to their ordinary duties." The tone of this memorandum, and the sense of the order, is quite unmistakeable to my apprehension, and leave no doubt in the mind of the reader that the order in question which originated with the C. C. of all India, and which had sole reference to the Bengal Subordinates, had been under a very mistaken impression extended to the Madras Medical Subordinates by the head of their Governments; the fault, however, lies elsewhere, for who in medical authority does not know that there is not a single subordinate who holds a charge extra to that of his appointment, or that such an occurrence could be even possible from the very nature of the duties that are distributed among them, nor yet that any receives a "superior rate of pay for being in medical charge." The stations in charge of Medical Subordinates being the Siberias of the Madras Presidency.

Admitting even that head money is admissible for a charge of sick or other Details, of what value could the resulting advantage be? The strength of these Details is generally from 12 to 50 men, but more frequently 25,—the number of days in charge may amount to 20, for by this time his relief arrives, and he has then to travel back alone to his own station, there he has half a dozen papers to obtain to establish his claim to head money for 50 men for 20 days which will give him Rs. 8-1-0! or for 25 men for 20 days Rs. 4-0-6! !!

The arduous nature of the duties of a subordinate in the Superintending Surgeon's department with European Sick, in which so many

requirements are summoned, may be briefly stated. He is the Prescriber,—Compounder and Dispenser; He has daily to bring up certain Hospital records and to prepare and forward, weekly and monthly, all the professional papers required by the regulation from medical officers in Garrison or Cantonment; His work *begins* immediately after the termination of a long and too often harassing march, and when it will end no one can say; on the occurrence of Cholera or other serious sickness he is called constantly to the bedside of his Patients and each time he retires, it is with a certainty he must go back again to attend to some fresh calls of suffering humanity, either among the Men, Women, Children or Camp Followers; Night brings with it no relief; A sentinel on his watch is certain of his hours of repose, but a medical subordinate perhaps seeing sentinel after sentinel relieved from his post, is reminded of the hour which warns him to prepare to march on to the next stage, and the morrow sees the same work of yesterday. This is no imaginary picture but one that falls short of the reality.

In order to render the subordinates of this department always efficient and ready to meet the exigencies of the service, it would be highly desirable that horse allowance should be permanently granted to them as forming an item in their pay and allowances, whether travelling or otherwise, and the same indulgence may be fairly granted to those in fixed situations, only when marching in the Field or when directed to proceed in charge of sick or other details, instances of which not unfrequently happen when all the departmental hands are absent on the same duty.

Horse Allowance—Section 19th p. 5. Conductors and Overseers, Sub-Conductors, and Sub-Overseers when marching, in the Field, or proceeding with Stores from one Station to another are entitled to Horse Allowance Rs. 30 per mensem. In returning to join (if without any charge) the allowance will be regulated according to distance. The allowance is not claimable when proceeding by Sea at the public expense.

6. Store Serjeants detached in charge of Ordnance Stores are entitled to Horse allowance at the rate of 10 Rupees per mensem during such charge in addition to other established allowances. The same allowance is payable at the same rate, to Commissariat Staff Serjeants when detached in charge of Public Cattle or Remount Horses, or to visit Public Cattle Depots, &c. &c.

N. B.—The above allowance Rs. 10 is permanently granted to a Warrant or Non-Commissioned Officer of the Commissariat

Horse Allowance is granted to Warrant and Non-Commissioned Officers of the Commissariat and Ordnance departments when proceeding on Command, (vide Pay Code, Page 382, quoted in the margin) and is an evidence of the warm interest that the Head of these departments take in the welfare of their subordinate Officers. From the little that has been effected towards the amelioration of our condition, one would be led to conclude that the Medical Board are apathetic if not ini-

Departments at Secunderabad and Kamptee and to a Commissariat Staff Serjeant at Moulmein. mical to our interests, and if this be true, then not until we have among them such noble, liberal and unbiassed minds as a GEDDES or a FORBES, can we expect a removal of our grievances.

Having reason to believe that a memorial for Horse allowance through the proper and regular channel, will not meet with that cordial support and encouragement it deserves, I am induced to make this appeal through the Press which has often effected good with regard to Military affairs as in others, and it is probable that Government would indirectly make enquiry into the above statements, and in the same way concede the indulgence prayed for, from the same principle that they frequently adopt and follow measures, and make improvements in various departments, the first idea of which they obtain in the columns of a newspaper.

In conclusion I would fain hope that this exposition of the condition of Medical subordinates will meet the eye of the Provincial Commander-in-Chief, who doubtless always had the will but now has the power of effecting much good for the department. The Medical Subordinates are no strangers to him, and the present Government, there is much reason to hope, will not set aside his recommendations on their behalf.

I am, Sir,
Your very obedient servant,
A SUFFERER.

Full Batta Station,
29th April 1854."

We heartily trust for the sake of science in general, of medicine in particular, and for the great cause of social and political progress that the Provincial Commander-in-Chief will respond to the cry of "*A Sufferer*" and that Lord Harris will speedily pass into law a recommendation whereby the medical subordinates will not be thought unworthy of due consideration, thereby evincing His Lordship's disposition to alleviate the hardships of that suffering Branch of the service.

We have great pleasure in reproducing from the *Athenæum*, for the information of our readers who may not have seen it before, the following account, by Captain Nelson, of a plan of treatment in Cholera attended with the most happy results, and

reflecting much credit on the gallant Captain for his disinterested philanthrophy. We consider it deserving of a more extended trial.

To the Editor of the Athenæum.

Sir,—I enclose a prescription given to me by a physician in London who having had singular success with it, considered I might have larger opportunities of testing its merits—of such opportunities there is no lack at Ongole. During the last 15 months we have made up and dispensed large quantities of this mixture.

The following table showing the results is taken from the Cholera Register kept by 2d Dresser J. Gopaulsawmy Naidoo, in medical charge of Garrison Hospital at Ongole.

It must be borne in mind that many of the cases were very far gone before medical aid was called for.

Extract from the Cholera Register kept at Ongole from the 11th October 1853 to 19th July 1854.

Cases Treated.			Cases not Treated.		
Cases.	Recovered	Died.	Cases.	Recovered	Died.
60	44	16	36	11	25

The last case treated was a girl of 14; the daughter of a Sergeant of the 2d E. L. I. marching with a detachment of sick details through Ongole to Madras. She had suffered from Diarrhœa for 3 days and concealed the fact until regular Cholera seized her. On the 19th Instant at 9 P. M. the Apothecary in charge of the party to which she belonged was called in and treated her according to his judgment.

By 9. A. M. on the 20th the girl was in a state of Collapse and the Apothecary reported it, "a hopeless case." We then tried the Ongole remedy within an hour the pulse could again be felt at the wrist and after 4 or 5 doses the girl rapidly improved.

By the night fall she was pronounced out of danger and she is at this moment with her family who are resuming their march to Madras.

It is not an agreeable thing to have one's name mixed up with "A Wonderful Remedy," but considering it due to humanity, I sign myself,

Your obedient Servant,

Fred. Nelson, Captain,

2d N. V. Battalion Commanding Ongole.

Cholera Mixture.

℞. Sodæ Sesquicarbon : ʒiss,
Cretæ preparata. ʒij.
Spts. Ammon : Arom. ʒiij.
Tinct Capsici ʒii
Mist. Camphor. ℥iii.
Aquæ menth : pip ℥ivjs ℿ ft.

Dose, a table spoonful for an adult.

A tea spoonful for Children—to be given every hour until purging and vomiting ceases. Afterwards continue the mixture without chalk for a few hours. The disease having passed off, a little calomel may be given to excite the liver, but no purgative to be taken.

Ongole, 22d July 1854."

The following most interesting article we give insertion to being, we consider, particularly applicable to the present season of draught and mortality from Cholera and also as it regards the necessity of a more strict Code of Hygiene in the matter of Drains, &c. &c. in this Town.

"Cholera, embodying the opinion of the eminent Dr. Rush, of Philadelphia, to the effect that the means of preventing pestilential fevers "are as much under the power of human reason and industry, as the means of preventing the evils of lightning and common fire" may be regarded as involving the admission of a particular point in pathology, the truth of which is yet believed by others to require satisfactory proof. It is with some anxiety that we allude to the question before us, since it is of the utmost consequence just now that the practical results necessarily flowing from such views as those of Dr. Rush be pushed to the greatest extreme; and it may appear, though only, it is true, from a very superficial view of the question, as if our own opinions were rather depreciatory than otherwise of the laudable endeavour to annihilate "the sources of malignant fevers" and other pestilential affections. But the truth is, that whatever difference might exist upon the point of pathology, none would prevail upon that of most interest to the public—viz., the necessity of having recourse to the most complete theory of hygiene or preventive therapeia as practically carried out in an effective system of sanitary police. *Pathologically*, however, difference exists, and which we may thus illustrate:—Speaking in general terms, it may be affirmed that wherever the more marked and more noxious elements of what has been aptly termed the *Great Town System* prevail, there do we usually find the character and ravages of epidemics and pestilential affections to be malignant and widely spread. What those elements are we need not dwell upon minutely; but suffice it to say that, in connexion with foul air, and defective general and local ventilation, the contiguity of filth and of decomposing organic and effete remains, with defective sewerage, the

burial of the dead in close proximity to the living, personal uncleanliness, noxiousness of trade, the consumption of polluted water and of unwholesome and adulterated food, together with a debased *morale*, we find the mortality from the zymotic class of (and some other) diseases to be much greater than without them. That some close, indeed most intimate, relation exists between these affections and the noxious elements above named, no one doubts; nor that, by a careful removal of the latter, we may diminish very considerably the mortality which at present exists within the sphere of their operations. But admitting that something far different than mere coincidence of occurrence in time and place between these two important factors exists, what, it may be asked, is the exact nature of this connexion and the true expression of its relation in causation and effect. Now the axiom of Dr. Rush may be adduced to show that, on the one hand, such "noxious elements" must be held to be *exciting* causes of the diseases under review; whilst, on the other hand, it may be affirmed and that they are merely *predisposing* causes of them.

In the one case, certain anti-hygienic elements being conceded, zymotic pestilences are produced; whilst in the other their utmost virulence and concentration cannot effect this production, *minus* the specific poisons of the special affections. According to the first view, the "noxious elements" are regarded as the *source* of the zymotic poisons; according to the second, it is affirmed that "it is a step backwards, not forwards, in pathology, to revert to the putrefaction of organic atoms propagated to the living animal body" as a principal which explains or comprehends within itself any of the most material of the phenomena of febrile diseases; and that "the complete extermination of such diseases, by the annihilation of the causes from which they originally spring, may or may not be within the reach of medicine; but it will need a far larger amount of the evidence than we at present possess, or are likely soon to attain, to enable us to determine, with anything like certainity, what these causes are, and what is man's power over them." Of course we here express the difference of opinion in general terms only, for, as an eminent writer Dr. Alison) remarks, several, probably all, forms of continued fever may have, even at this day, *separate modes of origin*. Several cogent arguments might be brought forward by either party against the opposite doctrine, and our own judgment we at present prefer keeping in abeyance, until further information shall arise. However, we incline to the belief that the "noxious elements" spoken of are rather the *predisposing* than the *exciting* causes of pestilences and epidemics. We admit the one is just as essential as the other to the production of the resultant disease, as is well shown by Dr. Carpenter in his "Predisposing Causes of Epidemics;" also, that there is an apparent weakness in the theory we would incline to, if the admission of one of its most illustrious supporters be necessary—viz., that certain specific and zymotic poisons may be "occasionally generated under the influence especially of the causes known to give predisposition to the dis-

ease," as this would go far to admit the essential point in the argument of the opposite party.

But if we cannot as yet see our way clear in admitting the anti-hygienic conditions before mentioned, to be the genesis of the specific poisons of the diseases above referred to, we of course admit to the fullest extent their potency in acting as great vital depresents, and rapidly and surely predisposing the organism to yield to the influence of the zymotic poisongerm, when coming within the focus of the latter. But *we* not only necessitate the immediate removal of the noxious elements of the great town system as a main power in mitigating the effects of epidemic pestilences and of many febrile affections, but go even a step in preventive therapeia beyond those who see the origin of the specific poisons in the noxious elements in question ; for we, in addition to those means which improve the general health, and render the body less susceptible, lay very great stress upon the *separation of the sick, and those who have had much to do with them, from those who are persons as yet unaffected.* This, in our estimation, most vital considerations is to a great measure generally, sometimes entirely, ignored by those who reject the idea of the particular malady being spread *via infectione*, and as dependent for its *origin* external to the human body.

Mr. Smith in the *Lancet* states, " that stricture at the orifice of the urethra was of more frequent occurrence than it would appear to be, from the little notice which has been paid to it by surgical writers. The causes of it were threefold : in the first place it was a congenital affection, consisting in the mere narrowing of the meatus ; secondly, it was produced by common or gonorrheal inflammation ; and thirdly, it resulted from previous ulceration of the glans penis, and the subsequent cicatrization of the ulcer. Stricture at the meatus was likely to produce serious and troublesome results. Very frequently it happened that another obstruction existed in the ordinary situation of the disease, and under such condition, if retention of urine occurred, the surgeon would find great difficulty in introducing the catheter into the bladder, in consequence of his inability to employ anything but a very small instrument, and it would be so tightly grasped that he would be unable to manœuvre it with facility. If, again, it should happen that a small calculus existed and had escaped into the urethra, it would become impacted behind the contraction at the orifice, and might grow to a large size, and cause great inconvenience. The author mentioned one case where a calculus had remained impacted behind the stricture

and continued in this situation for upwards of nine years, producing very great distress, until it was removed by an operation; it then weighed upwards of five drachms. The author also mentioned an instance under his care where an enormous quantity of purulent secretion resulted from a narrow and old-standing obstruction as the orifice of the urethra. The chief feature in these obstructions was their density and undilatability, especially when the contraction was the result of a previous chancre. With respect to the treatment to be employed in such cases, it was found that dilation alone would be useless, and caustics are undesirable. A combination of incision with dilatation is the readiest way of effecting a remedy. The French surgeons had invented some very ingenious and somewhat complicated instruments for making the section, but the author considered that the necessary incisions might be readily made with a simple narrow-bladed bistoury; it was advisable to incise freely, and, above all things, was it necessary to employ dilatation with the bougie afterwards from day to day; otherwise there would be great liability to recontraction. Some cases in illustration were recited. The author then made some observations on stricture seated in the anterior part of the urethra betwixt the bulb and the orifice, and considered that it was very frequently met there, and especially at a spot about one inch and a half, from the orifice. Stricture situated at this part is found to be much more troublesome and obstinate than when seated at the subpubic portion of the urethra, and in some of these cases he had found that dilatation and even caustic did not effect so much as when these remedies were directed against the latter. The readiest method of remedying them was to employ internal section, which might be used with safety in the straight part of the urethra. He showed a very useful instrument, consisting of a long grooved director, and a long narrow knife, cutting only at the extremity, which Mr. Matthews, of Portugal-street, had made from the instructions of Mr. Fergusson some years since. A stricture might be readily divided by the knife carried along the groove of the director, the point of which had previously been made to impinge upon the face of the obstructions."

A case had lately occurred in Dr. Leared's practice as, reported in the *Lancet*, " which suggested his views. The patient, a woman in comfortable circumstances, had suffered for a considerable time from vomiting at uncertain intervals, severe pain at the epigastrium, where also there were well-marked indications of a tumour and great constipation. For five months previous to death she refused all solid food, living chiefly on milk and beef-tea. Towards the last she was much jaundiced. The vomited matters presented very different appearances from time to time. The colour was at first white, but changed from various shades of yellow and green to grass-green. Sarcinæ were never discovered in them, but singular objects, consisting of granular-looking, central masses, surrounded by long spines, a drawing of which he exhibited, were in great abundance. The white specimens of the vomited matters afforded the largest examples, and those having the longest spines; while in proportion as the colour indicated an increase of bile the nuclei became smaller and the spines relatively shorter, and in the very green specimens none were to be found. His first impression was that they were animal organisms, but it was found that they disappeared on boiling in ether, thus proving them of fatty origin. On referring to MM. Robin and Verdeil's " Chimie Anatomique," he observed crystals figured closely resembling the objects in question, and a statement that they consisted of stearine separated from fat by a mixture of bile and pancreatic juice. Taking this with the evidence of an epigastric tumour, the great constipation, and loathing of solid food, he diagnosed obstruction of the duodenum from pressure below the outlets of the pancreatic and biliary ducts. He concluded, in fact, that the results of the experiment of MM. Robin and Verdeil out of the body had been produced pathologically by regurgitation of the same fluids into the stomach. He regretted that he was not permitted to verify his opinion by a post-mortem examination, and thus conversely to establish a new aid in the future diagnosis of duodenal obstruction. He observed, however, a discrepancy between the statements of MM. Robin and Verdeil and his own experience. They stated that a mixture of bile and pancreatic

juice was necessary to produce the crystals in question. He tested the matter by experimenting with pancreatic juice and bile obtained at a post-mortem examination, and found that pancreatic fluid alone was sufficient to elicit from fat crystals identical with those of the white specimens of vomited fluid, that they became smaller in proportion to the quantity of bile added to it, and disappeared altogether when in great excess. He concluded, therefore, that MM. Robin and Verdeil were mistaken in supposing that bile was necessary to the production of these crystals, as he found it to have the contrary tendency. He opposed the views of Bernard, that the fat of the ingesta and pancreatic juice are taken up by the lacteals in the form of an emulsion. He inferred from his experiments and his observations on the case stated, that one of the true offices of pancreatic secretion is the separation of fatty bodies into their immediate principles. Considering the excess of oleine over other principles in the animal oils, and the readiness with which they are assimilated, he suggested that oleine is probably taken up by the lacteals unchanged. He also suggested that margarine and stearine are excrementitious, their crystallization on being set free by the action of pancreatic fluid, and their high melting points, seeming to indicate it. He ventured to explain their reappearance in the fat of the body by a new arrangement of ultimate elements consequent on a decomposition of a part of the oleine by respiration."

Mr. Miller publishes in the *Lancet* three cases of Colliquative sweating in Phthisis, in which the exhibition of Oxide of Zinc and Extract of Hyoscyamus, of each four grains, to be made into 2 pills and taken at bed time, proved highly efficacious in arresting this evacuation. Mr. M. further adds that he has given these pills in several other cases in which they have the advantage over other remedies and of not giving rise to the violent attacks of Diarrhœa which so often come in when the perspirations are subdued :—

1. "Sophia—, aged twenty-seven, married, ill about eight months, has all the symptoms of Phthisis well marked, particularly the night

perspiration. Took of the above pills and on the third day the perspiration had entirely ceased, and have not since returned.

2. Catherine——, aged thirty-three, married, ill a long time: complains of profuse night perspirations, which entirely ceased in a few days after commencing the pills and have not returned.

3. Fanny——, aged twenty, unmarried; first seen 18th March 1854; has all the usual symptoms of Phthisis. Profuse night perspirations. Prescribed Cod-liver oil, half an ounce, three times a day, and Zinc and Hyocsyamus pills at bed time—March 21st is much more comfortable; had very little perspiration last night."

The following case is interesting on account of the successful result of the water-douche in inducing premature labour and because it is the second time in which this mode of treatment has been resorted to in the same individual. The report has been drawn up by Mr. Job, the present house-surgeon of the hospital:—

"Louisa C——, aged thirty-nine, was admitted into the Newmark Hospital. December 2d, 1853, for the purpose of having premature labour induced by the water-douche, as practised by Dr. Tyler Smith, and detailed in the *Lancet* of Oct. 2d, 1852. A report of the last application of the douche in this case was given in the *Lancet*, Dec. 4, 1852. The case was one of congenital deformity of the pelvis, caused by great projection of the promontory of the sacrum, narrowing of the pubic arch, and consequent lessening of the antero-posterior diameter. By referring to this report, it will be seen that this patient has had four previous pregnancies, two of which were terminated at the full period by Craniotomy; the third by perforation of the membranes at seven months and a half, the child being born dead; the fourth, by the application of the water-douche, labour coming on immediately after the sixth use of the douche, and thirty-six hours after its employment: in this case the child was also still-born. On the last occasion the membranes were ruptured fourteen hours before the expulsion of the child, and to this I in some measure attributed the result. I then stated, that should another case occur to me, I should allow the Liquor Amnii to be discharged without any interference.

She was, at the time of her recent admission, in her fifth pregnancy. She considered herself about seven months and a half gone, as nearly as she could calculate. On making an examination per vaginam, the os uteri was found to be somewhat dilated. A dose of castor oil having previously been given, the first application of the douche commenced on Dec. 11th, at half-past eleven A. M., two gallons and a

half of water 110° Fahr., followed by the same quantity of cold, being allowed to flow against the os uteri. She experienced no uneasiness whilst in the bath, but, on getting out of it, complained of pain and some uneasiness in the loins; this was followed, in about an hour, by a severe rigor. An examination was now made, and the os uteri was found to be rather more contracted than it was twelve hours previous to the application of the douche. The douche was repeated at half-past four P. M., commencing, as before, with cold instead of hot-water. Immediately after coming out of the bath labour-pains set in, and continued, without cessation, until half-past eight P. M., when she was delivered of twins, both born alive. The patient progressed very favourably, and left the hospital a fortnight after her delivery.

The case tends to show the great superiority of the water-douche over the operation of puncturing the membranes for the induction of premature labour, as in the two previous pregnancies, in which the membranes were punctured, the children were still-born."

Dr. Davidson publishes in the *Lancet* the successful treatment of Diarrhœa by sulphuric acid. Having ourself witnessed the beneficial effects of this remedy in Hœmorrhagic Dysentery we can confidently recommend its use in similar cases—and we consider it deserving of more frequent than several others to which an undue preference is given:—

"Having seen in the *Lancet* sulphuric acid so strongly and frequently recommended as a remedy for diarrhœa, I determined (as I had considerable opportunities of testing its efficacy) to give it a fair trial. I have now before me notes of fifty-two cases treated successfully with it. I administer the sulphuric acid in the following form:—Dilute sulphuric acid, two drachms; simple syrup, two drachms; tincture of opium, forty minims; water, six ounces. The patient to take a sixth part of the above mixture after each loose motion; in many cases two doses of the mixture are sufficient to check the diarrhœa. If the patient complains of cramp and pain in the abdomen, I order hot turpentine fomentations, and half or a third of a grain of morphia. If the vomiting is troublesome, a liberal supply of ice is allowed, which in this town is easily procured.

Sulphuric acid, as a remedy in diarrhœa, has many and great advantages over the chalk mixture. The latter is exceedingly nauseous, but the sulphuric acid is so pleasant that it is readily taken by children. It is decidedly more efficacious; it allays the thirst which accompanies diarrhœa; it is not precipitated; it is not afterwards followed by the troublesome constipation which attends the use of chalk mixture, and it is a very cheap remedy. Of course I do not administer the sulphuric acid in those cases of diarrhœa arising from the pre-

sence of irritating or non-digested food in the stomach or alimentary canal.

Cholera (in all probability) will soon be here, and others, like myself, may perhaps be induced to try this valuable remedy in combating its premonitony diarrhœa.

It becomes an agreeable duty at the close of a volume to thank our Friends and subscribers for their valuable support.

We shall dwell more largely in our next on the merits and demerits of this Journal and the amount of patronage which we receive at the hands of our brethren, of the Medical Subordinate branch as time and space will not permit us to dilate in the present number.

We see it announced in the *Official Gazette* of Sept. 1st that Assistant Apothecary Alexander Bogg now at the Presidency, has obtained leave of absence to proceed to Europe on Medical certificate, at the recommendation of the Medical Board, his health having become much deteriorated of late.

The following account is extracted from the *Lancet* as affording much light in a disease, the Pathology, and, consequently, the treatment of which has hitherto been little understood. We can call to memory how anxious we have felt for our poor patients, who were daily wasting to skeletons under our eyes, notwithstanding our various remedial means, the affection (Dialetes) baffling our best exertions for its cure.

" The attention of the profession has been turned to various remedies for the cure of diabetes, and the unsatisfactory results of treatment, as well as the uncertain pathology of the disease, has encouraged the experimental use of several specifics, some of which have been found to be attended in particular cases with more or less benefit, and are consequently recommended upon various authority ; but, if I may judge from my own experience, the general results of specific treatment are far from satisfactory. Some cases, however, that have occurred in my own practice, or falling under my obeservation, seem to indicate a hope that our treatment of diabetes may become more rational and more satisfactory ; and in the hope that I may be assisted by other investigators in collecting cases for observation, in drawing

inferences, and correcting conclusions too hastily formed, or upon insufficient data, I venture, even in the present imperfect state of my observations, to set before the medical public some sketch of my present views, which as yet are very far short of pretending to anything like a discovery, but, regarding the subject from a different point of view, may lead others more clear sighted than myself to find a path penetrating into the mysteries of its pathology.

Diabetes was regarded by Dr. Prout as a form of dyspepsia—a "paralyzed function of the assimilating organs"—and it was a great advance in its pathology to relieve the kidneys from the blame of all the wrong that they are constantly doing their best to remedy; and I am not aware that any considerable advance has been made in our knowledge since that time, if we may except some negative knowledge as to the effect of remedies, and Heule's argument, in his "Handbuch der Pathologie," that the sugar is not necessarily the product of food; but that subjects fed entirely on nitrogenous food produce it in considerable quantities, and that it seems to be formed rather at the expense of the muscular tissue of the body than of the fat. My own experiments have clearly demonstrated the fact that a hospital milk diet, with a good allowance of extra bread, butter, barley-water, and soda-water, does not increase the amount of sugar excreted; and that an exclusively animal diet does not diminish it with any such certainty as to justify the inference that the sugar is formed from the farina or sugar of the food.

The experiments of Bernhard prove the formation of sugar in the liver and its destruction in the lung, determined by some nervous influence, the centre of which is situated in the floor of the fourth ventricle at the origin of the eighth pair, and these experiments have been repeated by most of our own physiologists with success. The mode of performing them, and their difficulties and cautions are well described by Dr. Parry, in the last publication of the "Guy's Hospital Reports."

The inferences drawn from these experiments seem to be, not only that sugar is abundantly formed and excreted by the kidney, when the pyramidal body is delicately punctured, but that the same result of irritation may be produced by the influence of galvanic currents on the pneumogastric nerve, and that such stimulus must act through the medium of its cerebral organ; the pneumogastric nerve not being that which presides over saccharine secretion, but rather being a nerve of sensation, and conveying the sensation which regulates all the respiratory actions, whether of normal or of hurried breathing, yawning, sneezing, coughing, crying, laughing, &c., and is possibly the nerve that conveys the physical impressions of mental emotion, especially in connexion with visceral disorder.

It is not my object at present to enter into this subject as a physiologist, but to contribute some clinical facts which may lead to a more rational course of treatment of the disease in question than hunt-

ing after specifics; and when we shall have ascertained something more definite than the present state of medicine possesses, even if we do not pretend to cure the disease, we shall have grounds for separating in our treatment the cases which may be organic from those which are functional. We may even hope to see a large class of functional cases detected and cured; and if we cannot restore organic changes, we may at least do something towards relieving the distressing consequences, or at all events we shall not add to the distress by needless privations and useless remedies.

Diabetes is not so common a disease, in its aggravated form, that we get a large field of experience even in our great hospitals; and it is only by seeking for such cases amongst our medical friends that we are able to obtain more than two or three cases in a year; indeed, I have known a year pass over without meeting with a single case, even amongst the large number of applicants as out-patients, from whom we might have selected them, and I have generally observed that two or three cases have appeared about the same time. But saccharine urine is a much more common affection, especially in children, and is often concomitant with other matter in excess, as the lithic acid, lithate of ammonia, and especially phosphate of lime and albumen; and on the examination of the urine of every patient admitted into the medical wards of St. Thomas's, we have found sugar in a considerable proportion, of which I intend to give a statistic report; by that report it will be observed that in cerebral or nervous diseases the absence of sugar is the exception and not the rule.

For some months since I have been engaged in considering this subject. I have admitted every case of epilepsy, paralysis, and chorea that has applied at the hospital during my weeks of admission; and not only have I found sugar in a large number of these cases, but I have found the sugar disappear as the symptoms are relieved by treatment. Ordinarily there is no diuresis, and the urine is often turbid, and frequently ammoniacal, and the specific gravity from 1·020 to 1·024. As the ammonical salts interfere with the operation of Trommer's test, I boil the urine for a few minutes, with the addition of a small quantity of pure soda. This sets free the ammonia, and precipitates the phosphate of lime, and then I proceed as usual with the addition of three or four drops of a solution of sulphate of copper, and boil it again with a slight addition of alkali. A yellow precipitate then indicates the presence of sugar or some deoxydizing substance.

Several years ago, a case which ended fatally occurred under my treatment in St. Thomas's Hospital, in which the urine suddenly lost all traces of sugar. On the one day he passed twenty-four pints, specific gravity 1·058, clear, straw-coloured; and on the following day the quantity decreased to fourteen ounces, with pink sediment, specific gravity 1·042, and the patient was bathed with perspiration. He was seized with pneumonia, and died within five weeks of phthisis, or at all events with vomica in the apex of each lung. There was no trace

of pulmonary disease prior to the change in the condition of urine. This case impressed me with the idea that Prout's theory was not altogether correct, and I thought it improbable that the symptom which so suddenly gave way on the development of pulmonary disease must depend upon some cause other than partial paralysis of the digestive functions, or chronic dyspepsia, and that in that case it could not have depended upon any disorganization of structure.

From that time I omitted no opportunity of obtaining diabetic patients for observation, but I did not meet with any other case in which the diuresis suddenly disappeared ; and although I thought some of my patients were benefited by treatment, the amount of benefit never satisfied me that the disease itself was at all removed. Fluctuation in the amount and specific gravity of urine appeared quite independent of any treatment adopted ; but I assured myself of the fact, that the amount of sugar excreted by the kidneys was not materially diminished by a pure animal diet and opium, nor increased by a milk diet, with a plentiful supply of bread, rice, and barley-water, and even cane sugar. In drawing our deductions from this fact, it is necessary to bear in mind that diurnal fluctuations are constantly taking place, and that, under the same treatment, constantly persevered in, a variation of considerable amount occurs from one day to another, so that we must take the average of a week at least to determine whether treatment is doing anything towards the diminution of the symptom, unless, indeed, the diminution be so considerable as to leave no doubt that it is the effect of treatment, or of some change in the exciting cause.

The next case that occurred to me, which seemed to throw light upon the subject, was the following :—

James C——, aged forty-six, railway-guard on the Great Western Railway, a man in previous good health, met with an accident, in consequence of the slippery state of the rails, which prevented the break from effectually stopping the train, and a slight collision took place. He was thrown forward, and the handle of the break, which is a lever, turning a screw against the force of a strong spring, slipped out of his hand, and the spring forcing the screw back turned the handle with increasing velocity, and it struck him on the side of the head. He was stunned, but after about an hour was sufficiently recovered to be led between two men to a house a mile distant, where he was put to bed. He suffered from concussion of the brain, having no recollection of the accident, or how he got to the house. The accident occurred at Exeter. I did not see him till Dec. 21st. He has recovered from all the urgent signs of concussion, and had even taken the charge of a short train to Windsor and back, but was so much affected by the shaking, that the superintendent sent him to me to examine and report. He complained of giddiness and confusion, but no pain, except tenderness where his face had been much bruised; pulse 110 ; skin very dry and harsh ; tongue very red and sore, with no mucus, but not dry ; he complained of excessive thirst, and said that his appetite was remark-

ably good; bowels costive; and on being asked about his urine, he told me that he passed a most extraordinary quantity, and had done so ever since his accident. In fact he passed so large a quantity, that in the cottage where he was residing they could not get vessels enough to contain it till morning, as he filled all the urinals and the wash-hand-basin. Having obtained a specimen, I found it loaded with sugar; specific gravity, 1·052.

The treatment adopted was to keep him quiet in bed, apply evaporating lotions to the head, the hair cut close, and purgatives. Choloride of mercury, eight grains, and compound extract of colocynth, five grains, immediately; sulphate of magnesia, one drachm; infusion of roses, an ounce and a half, three times a day. His diet was to be milk and farinaceous, with as much water or barley-water as he desired.

At the end of a week (28th December) I saw him again. He was purged by the calomel, but not since. He felt better the day following, but still I did not find any improvement, except the urine was rather less in quantity, but it contained a trace of albumen, and he had pain in his loins, and numbness in his legs and thighs, (a common symptom in diabetes, but might be attributable to the brain.) The pulse was 98. I prescribed calomel and compound extract of colocynth, of each five grains, every night, and compound senna draught, every alternate morning; to continue the sulphate of magnesia draught; and blister the head.

On the 2nd of January, he called upon me again, and stated that the medicine purged him considerably, and that something in his head gave a click, when immediately a kind of cloud passed from his mind, and he seemed to wake from a dream. The urine became scanty and high-coloured, specific gravity 1·012, no sugar. He was still purged by the medicine, and felt himself otherwise quite well. The tongue had lost its raw-beefy appearance; pulse 80, and small. Medicine was discontinued, and in a few days he returned to duty. He is now in perfect health.

About the time referred to, I had a case in King's ward, No. 12, Jacob M——. I was induced to use purgatives, and apply the blister to the head, in consequence of the result of the guard's case, and the event was most satisfactory. The man is now in perfect health, passing an ordinary quantity of healthy urine, without a trace of sugar or albumen; moist skin, and cheerful-looking face.

The next case, William A——, aged twenty, No. 14, King's ward, though a young man, was not so satisfactory, for he left the hospital to go into Devonshire, still diabetic; but at the time he left, the urine was reduced from about twenty to eleven pints, and the specific gravity reduced from 1·050 to 1·036. The interest of this case consists in its being traceable to an injury to the head, and in the partial relief produced by the blisters and purging; but it must be observed that it was of eighteen months' standing; and the attention must be directed

to the improved state of the tongue, diminution of thirst and canine appetite, the restoration of perspiration to the skin, and the improvement in aspect, strength, and cheerfulness.

Another case to which I must refer is now in King's ward, No. 12, who came up from Cheltenham, and had been under treatment for two years before admission. He seems to have derived more benefit from strychnia than any other remedy he had had recourse to ; but when admitted, after a blister to the head and a calomel purge, the urine was reduced from twelve quarts to six pints, and the specific gravity from 1·048 to 1·032 ; but since then the amount has increased to an average of eleven pints, fluctuating two or three more or less, and the specific gravity varies, averaging 1·038.

A case was related to me by Mr. Gibbs, a surgeon at Birmingham, of a manufacturer who applied to him for advice in consequence of his suffering from diabetes in an aggravated form, with all the most prominent characteristics and symptoms of the complaint. He was kept upon a diet of flesh and porter, and opium was administered for six weeks, without any material alleviation, when he was suddenly seized with an attack of paralysis. A calomel purge, and a blister to the nape of the neck were administered, and he was treated generally for cerebral congestion. The diabetic symptoms suddenly disappeared, he recovered partially from his paralysis, and no sugar has since been traceable in the urine.

These cases individually would prove nothing more than an accidental alleviation of morbid action, which might or might not be connected with the treatment; for the same sudden subsidence of saccharine diuresis might occur at any time, (for anything we know to the contrary, as far as the pathology of diabetes is concerned,) which took place in the first case that I mentioned, where there was no treatment of cerebral disease ; and in two other cases the relief was neither sudden nor complete ; but taking them in the aggregate, and reasoning upon the probabilities, that the brain was implicated in all these cases as the organ at fault can scarcely admit of a doubt , a conclusion which is confirmed by Bernhard's experiments, whatever may be the explanation of the physiologist as to the particular part played by the liver or the lung in the formation or destruction of the saccharine principle. I should observe that in the case of the guard, and Mr. Blake's case, the relief was sudden and complete, and that in both these cases the disease had not been of long duration. In cases No. 4 and 5, the disease had been in existence a year and a half and two years, and the result is proportionately tedious and incomplete, but still sufficient to indicate the effect of treatment. One point is remarkable, that in every case the action of the skin was restored, so that even the old chronic cases were seen perspiring copiously, and the appetite moderated, though not impaired."

The testimony borne by HOMER says the *Lancet* "to the pre-eminent importance of medicine as an arm of military science is as true at the present moment as when the Greeks of olden time had to contend against sickness and pestilence under the walls of Troy. After the revolution of centuries, vast armies are again encamped in hostile array upon classic ground. Admitting the general advance of civilization,—and this, perhaps, as regards a large portion of the belligerents, is not very conspicuous,—can it be maintained that the Turkish or Russian forces now assembled on the banks of the Danube, or even the better-equipped legions of England or of France now gathering on the shores of the Bosphorus, are very much better off as regards protection against epidemic disease than were those armies whose deeds and disasters are recorded in immortal verse? Is it not still true, true as in days of old, that pestilence is the most terrible of enemies, the most destructive of foes? Is it not also true that pestilence rages under certain conditions, some of which are known, and may be avoided? Is it a hopeless or an unattainable object to discover *all* the laws of epidemic disease, and to shield masses of men from wholesale destruction, from dying like sheep of the rot? It may be confidently asserted that the science of medicine, as far as it can be studied in communities living under the ordinary hygienic conditions of modern civilization, has been carried to a pitch of eminence at least on a level with that obtained in any other science, if we except, perhaps, that of mathematics. But the truths of medicine can only be partially pursued and imperfectly determined by study in this circumscribed field. In ordinary civil life we are exempted from many of the conditions which favour the development and spread of zymotic diseases. The study of medicine is principally confined to the observation of those diseases which attack individuals, the whole history of which begins and ends with the phenomena that single individuals exhibit. This kind of medicine we have ventured to designate as *minute* medicine, as contrasted with that larger view of the scope of medicine which embraces the study of the influ-

ence of external agents upon the physical and moral health of aggregations of men. Is it not obvious that there is a wide difference between the kind of skill required to treat a particular case of disease—a pleurisy, for example—where our concern is directed exclusively to the individual sufferer, and the skill required to combat an epidemic disease that has laid low its hundreds or thousands of victims, and where our efforts are imperatively called for not only to heal the sick, but to preserve the sound?

Again the *Lancet* asserts "that medicine in this larger sense has never yet been studied as it ought to be. Nor is the blame of this to be attributed to those who follow medicine as a profession. Our great civil hospitals do not supply the means of advancing far beyond the bounds of minute medicine. Our young men learn much it is true. We do not fear contradiction when we say, that in no other profession do young men pass from the ranks of students, to enter upon the more responsible duties of practice, better prepared for the step. Looking simply to the sphere of action to which the majority of young physicians and surgeons are destined, it may be contended that their education is carried to a very high point. But if we extend our view beyond civil practice, to the medical care of our fleets and armies, we do not hesitate to say, that the education of those to whom this important charge is confided, is defective in a very essential particular. The proper field for the completion of the education of our army and navy surgeons, is actual service with armies and fleets. There is always much that is special in the practice and duties of the military or naval surgeon. If this view be correct,—and we may safely appeal for confirmation to what is actually passing under the observation, and we may add, the animadversion of the country,—of the medical service of the navy, we speak with an indignation we cannot suppress. The official neglect and contumely manifested towards that service would have been disgraceful in the days of CHARLES the SECOND. That reckless monarch exposed the British fleet, under every privation, to the assaults and insults of the enemy·

We now behold in the Baltic and in the Black Sea two of the most splendid fleets England ever equipped, carrying many thousands of our finest seamen, exposed under new circumstances, to be assailed by an enemy no valour can resist. The *personnel* of the British navy—we say it without any wish to detract from the well-deserved character of many able men—is lamentably deficient, both in quality and in numbers. It is a fact too notorious in the profession to be gainsaid or discredited by official quibbling and perversion, that none but those hopeless of earning for themselves an honorable position ashore, or in any other service, can be induced to enter the navy.

The army is indeed better supplied. In this service the medical officer is placed upon a footing more consonant to the position he is entitled to hold in society. It is therefore less unpopular ; a better class of young surgeons accordingly seek admission. But it may be fairly questioned whether even in the army there is a sufficient number of medical officers competent to meet the numerous emergencies arising in an active campaign. The medical organization is barely adequate to the ordinary requirements of the service in times of peace. In the havoc of battle the surgical staff must be literally overwhelmed with the extent of their duties.

In organizing the medical services of the Army and Navy, proper encouragement should be held out to induce young men who have shown the greatest promise of future excellence in their profession to seek for further instruction and honour in the public service. Not only should the regular staff be enlarged, but liberal facility should be given to medical practitioners, actuated by a desire to extend their sphere of observation, to attach themselves for a period to certain ships or regiments as supernumeraries. There are many men, animated by the love of enterprise, or impelled by the thirst of knowledge, who would gladly give their services in this latter capacity. It is a duty, no less than the interest, of the Government not to disregard assistance of this kind.

The *Times* would appear to think that every struggle made by the profession, either with a view to improve its political status, to advance the science of medicine, or to make it more extensively useful to the public, must be treated as a question purely interesting to the profession, and as one with which the public have no concern. Shall we ask whether the preservation of the health of our armies and of our marine is a professional or a national question? Is there no instance of a campaign being lost, of our army being defeated, of our national flag being stained, because the right arm of the soldier was paralyzed by sickness, because the aid of medicine was slighted? The error which led to the disaster of Walcheren, is one that reflects even less discredit upon our military strategy, than upon our unwise neglect of the counsels that medicine could have given."

Warning to Homœopaths.—The *Lancet* says "we have derived considerable amusement from the perusal of a letter which appeared in the *Nonconformist*, a few weeks since, written by a persecuted homœopath in Honduras. It would appear that the writer is a Missionary, who in addition to his spiritual labours, has practised homœopathy, although, as he himself says, "unprovided with a diploma," and has, among other wonderful cures, saved nearly all the cases of cholera which occurred in the settlement. One solitary case, however, unluckily died; and, by a "conspiracy," in which "two Doctors of the old school and a Popish priest" were the chief agents, the homœopath became involved in a Coroner's inquest. A verdict was returned, strongly censuring the treatment of severe disease by homœopathic remedies, the Coroner at the same time remarking, that "homœopathic treatment must be utterly useless in cholera; it could have no effect." We learn from the same letter, that a law has just been passed by the Legislature of Honduras, which forbids the sale of compounded drugs, and makes the act of prescribing, except by a Medical man, punishable by a fine of 20*l*., or one month's imprisonment.

The clerical homœopath, in concluding his letter, pathetically laments that in Honduras there is very little defence in law for Medical Nonconformity. It would be well for the public if there were as little in our own enlightened country."

The application of the above law adapted to the various classes forming the community here in the case of the Charlatons so numerous in this Presidency would go far in ridding the public of a great nuisance and of saving perhaps many lives.

The *United Service Gazette* says " a Minute of Government under date 1st instant, in compliance with the recommendation of Dr. Shaw, the Medical Officer in charge of the Lying-in-Hospital, supported by the Medical Board, authorizes the establishment of a School for Nurses and Midwives in connection with that institution ; in order that women so educated might hereafter be available at the different large Stations, to the great convenience of families in their time of need. The women so selected to be of unimpeachable character, and the wives of Soldiers. Not more than four women to be attached at one time to the Lying-in-Hospital and their period of residence there to be limited to 9 months or a year, during which period they would have an opportunity of being present at from 4 to 600 Confinements, their instruction to be of the most practical character, and purely clinical. No woman to be selected for the class who could not read and write tolerably, so that she might keep a journal of Cases. The women, in addition to their monthly allowance as the wives of Soldiers, are to receive a small allowance in the shape of rations, and the Right Honorable the Governor in Council further sanctions a moderate charge for travelling expences in the case of women coming from Bangalore and intermediate Stations. His Lordship in Council has also sanctioned the erection of quarters for the Apothecary attached to the Lying-in-Hospital, within the Hospital Compound, as recommended by Dr. Shaw, in order that his services may be at all times immediately available. We

cannot give too high praise to the zealous originator of this excellent work, and the liberality of Lord Harris in giving effect to Dr. Shaw's suggestions is equally commendable."

A case was lately brought before the Southwark Police Court says the *Times* " in which a woman had received some severe wounds from the hands of a lodger, and died in consequence of hæmorrhage from the left femoral artery, which appears to have been divided. It was stated in evidence that when the condition of the woman was discovered a Surgeon was sent for, and a Mr. Johnson, who was first summoned, refused to attend; and when another Surgeon arrived he found that life was extinct.

Some remarks having been made upon the non-attendance of Mr. Johnson, that individual addressed a letter to the Magistrate of the Police Court, giving the following extraordinary reasons for his refusal to succour the dying woman. He stated that he was not qualified to practise legally, *and that if he had attended he would have subjected himself to a fine of 20l.* Here we must beg to differ with Mr. Johnson; he would have been exposed to the fine if he had practised *as an Apothecary*, but no punishment would have awaited him for practising *as a Surgeon*, and the case of the wounded woman was undoubtedly surgical.

Again, Mr. Johnson alleges, in his letter to the magistrate, that if he had failed to stop the bleeding, and had neglected to tie the divided vessel, he would have been liable to an action for malpraxis; but here again we think that Mr. Johnson evinces great ignorance of the laws of the country, and of the practice of our Law Courts. In fact, the want of any qualification would have completely protected him. Repeated precedents have shown, as in the case of Mr. Housley, that a *qualified* Surgeon may be punished, and punished severely, for an error in judgment, or even for an unfortunate event which no amount of science could have prevented; but an *unqualified* man is protected by the law courts of the country, *because he is unqualified.*

In fact, any person may practise Surgery with impunity. There is no law whatever to prevent a man from practising in that capacity whether with or without a qualification. And as for an action for malpraxis, the qualified man stands but little chance against the empiric.

We have often lamented this state of things, and we deeply regret that some measure for separating the legal practitioners of Medicine and Surgery from impudent pretenders has not yet passed the Legislature. The circumstance of a man pretending to act as a Surgeon (for we are assured by a Correspondent that Mr. Johnson has a brass plate on his door with the title Surgeon-Accoucheur), and refusing to give aid to a dying female, is a disgrace to a civilized country; and we earnestly hope that the subject will attract the attention of Lord Palmerston, who has lately evinced considerable zeal in Medical matters, and who possesses sufficient influence to remedy an evil so discreditable to the age, and so revolting to the common feelings of humanity."

Death from "the Stock."—The *Times* says "an inquest lately held on the body of a soldier at Templemore Military Barracks, the following verdict was returned:—"That on Tuesday morning, the 6th inst., about one o'clock, Samuel Henfield came by his death from effusion of blood into the pericardium, which proceeded from an aperture in the aorta, having been induced by the pressure of the stock around his neck during the period of his service, and not otherwise." The *Times* observes, in remarking upon this case:—"Such a statement of the sad results of a vicious adherence to an old system will, it may be hoped, have its effect in the proper quarter; and that no further time will be lost in carrying out those reforms in the dress and equipment of the soldier to which the Government is now fairly pledged." "

Selections.

Lectures on Histology, delivered at the Royal College of Surgeons. By JOHN QUEKETT, Esq., Resident Conservator of the Museum of the Royal College of Surgeons of England, and Professor of Histology.

The Microscope and its Application to Clinical Medicine. By LIONEL BEALE, M. B. Lond., Professor of Physiology and General and Morbid Anatomy in King's College, London. Samuel Highley, 32, Fleet-street.

The rapid advance of human and comparative anatomy, physiology, and pathology during the present century is mainly due to the aids furnished by two auxiliary sciences—chemistry and optics. While the former is limited to the proximate and ultimate composition of animal substances, and can only operate on the complicated organs in the gross, the latter, by means of the microscope, enables us to separate the individual tissues of which our complex organs are composed, and in many instances to show the changes produced in these ultimate tissues by the application of chemical re-agents. The great distinction, however, between the two methods is, that observation by the microscope can only be made when the object presents visible form; so that this instrument is inapplicable to all substances capable of, or existing in solution. Here chemistry steps in, and complete the examination.

Confining our attention at present to the microscope, by which the ultimate visible elements of tissues are brought into view, their nature ascertained, and their form and properties determined, we may state that so imperfect was this instrument in the earlier part even of the present century, prior to the introduction of achromatic object-glasses, that the elaborate drawings of Bauer, illustrating the papers of Sir E. Home and others, are almost all of them ascertained to be illusory, and consequently worthless, owing to the want of definition in the instruments employed. But in the admirable microscopes now made by our principal opticians this defect, is removed, and great reliance may be placed on the statements of competent observers.

Deprecating, as we have done, and still continue to do, many of the political proceedings of the Council of the College of Surgeons, we must nevertheless award the highest praise to them for their management of the magnificent museum originally committed to their charge by our Government, for the liberal expenditure of the funds of the College on its maintenance and enlargement, and for the establishment of the Professorships of Comparative Anatomy and Histology, by means of which the contents of the museum are annually explain-

ed to such members as choose to avail themselves of the opportunity, in the admirable lectures of the two talented professors.

The histological department of the museum, of which the two volumes under review are illustrative, is of very recent date. It commenced with a collection formed by Professor Quekett, which has been continually augmented under his auspices until it now numbers no less than fifteen thousand specimens, illustrative of all departments of natural history, vegetable and animal, fossil and recent.

The plan of arrangement of this collection is founded on the same basis as that of Hunter. Commencing with the simple tissues and the lowest form of living beings, it traces the gradual superaddition of certain of these elementary tissues as we rise in the scale of being, and the greater complication of the individual organs in their intimate texture.

In the public courses of lectures on Histology, the Professor has followed out this plan, the first volume being devoted to the description of the elementary tissues, first in plants, and then in animals. It might perhaps be thought, at first sight, and the error would be very excusable in those who have paid little attention to the subject, that the description of the minute structure of plants is very remote form and useless to those engaged in the study of animal physiology ; but Hunter himself long since took a more enlarged view of the matter, and commenced his physiological series of preparations with the parts of plants. Since his time these two departments of physiology have been much more closely approximated by histological research, and the close affinity between the animal and vegetable cell in its development has been fully demonstrated. The utility of histological research to medicine and its allied sciences is strongly stated in the introduction to the Histology of Vegetables.

"In organized beings, Nature works out her most secret processes by structures far too minute for observation, unless with the assistance of the microscope. Hence, we find that our best modern works on human and comparative physiology are filled with descriptions of minute structure. The processes of secretion, of nutrition, of generation—nay, even the mysterious actions of the brain and nervous system, unintelligible, except in their results, by the gross means of investigation heretofore employed, are now being gradually evolved by the labours of microscopic physiologists. Nay, more,—what is of greater importance,—having discovered the healthy structure of the organs, the microscope is brought to bear on the changes of structure of these organs in their abnormal conditions, so that we now have not only a microscopic physiology, but also a microscopic pathology. The greatest possible aid is thus afforded to scientific medicine in the diagnosis of diseases, that in many cases would be undistinguished without the aid of this instrument. It would be easy to quote numerous examples of the utility of the microscope in establishing a sound pathology, but it will suffice for my present purpose to cite urinary deposits and tumours, the nature of which is most readily determined by microscopic examination."

The author has rightly limited the portion of the work on the Histology of Vegetables to the description and illustration of the elementary tissues composing plants, leaving to systematic treatises on structural botany the combinations of these tissues into the organs. The different forms of vegetable cells, ducts and vessels, their modifications and contents, are accurately described and delineated, and the practical purposes in human life to which some of them—starch for example—are applied, have not been neglected.

In the description of the elementary tissues of animals, Professor Quekett follows the excellent arrangement of these tissues given by Todd and Bowman in their "Physiological Anatomy," and the remainder of the first volume is occupied with the consideration of simple structureless membranes, as seen in the walls of cells, the posterior layer of the cornea, the sarcolemma of muscle, &c. ;—of fibrous tissues, the white constituting areolar, the yellow the elastic tissue ;—and of the cellular tissues (which most closely approximate to the vegetable forms,) cartilage, adipose tissue, pigment, the grey nervous matter, epithelium,&c. In this part the author has somewhat digressed from his original plan, to glance at certain morbid conditions in which modifications of these primary tissues occur, and some interesting observations will be found on enchondroma, the ivory or porcellaneous deposit in bone, and fatty degeneration of organs.

In the second volume, the author commences the description of the hard, or sclerous tissue, which forms the skeleton. Our readers will recognise in this work the enlarged views of philosophical anatomy first promulgated in Germany in reference to the construction of the skeleton, and the right we have to look upon the exo-skeleton, of many tribes as a true skeleton. The German authors, and, much more recently, anatomists in our own country, have taken the view that three separate forms of skeleton occur in the animal series—the neuro-skeleton, which is internal, for the protection of the nervous system, predominating in the vertebrata ;—the dermal skeleton, most highly developed in the articulata ;—and the splanchnic skeleton, including the teeth, the bone of the heart in stags, and other detached bones occurring in different animals, but in all cases more or less rudimentary and imperfect, and in many altogether absent.

The minute structure of the skeleton is subject to as great variations as any other part in the animal series. In the exo-or dermal skeleton of many animals, the original cellular condition is preserved, as in the shells of the bivalve and univalve mollusca, the crustacea, and even in insects. Within these cells the hardening substance is deposited, which in the invertebrate animals is either silica, carbonate of lime, or a mixture of carbonate with a small proportion of phosphate of lime. These earthy matters may be deposited either in a crystalline or more commonly in an amorphous state. In some parts of the skeleton, however, as in the nacre of the shells of the univalve and bivalve mullusca, a further development occurs, and the original hexagonali cellular texture becomes fibrous and laminated. In the vertebrata,

on the contrary, the cells of the bones of the internal neuro-skeleton disappear very early, if in some parts they exist at any time, and the tissue goes on to a much higher degree of development and complexity of structure. The description of the bone through the vertebrated classes will follow in the succeeding volume, which will prove of greater interest to the human physiologist than that now under review.

These volumes, splendidly and truthfully illustrated as they are, place us *au niveau* of the knowledge we possess of the minute structure of an immense and most diversified section of the animal kingdom, and one which has been but very recently explored. Much still remains to be done in the investigation of the structure of this division in the adult condition, but in truth still more in the development of the structures so ably described by the author. It is, we believe, to the lower parts of the animal scale that we must eventually look for the solution of the mysteries of development and the analogues of the transition states through which the higher animals, and even man himself, pass from the earliest embryonic traces to the perfect condition; and for this reason, the investigation of structures so widely removed in appearance from those of the human body really becomes of great utility to the physiologist, by demonstrating the unity of the laws which preside over organization and life. The study of even those parts of this work that relate to the lowest forms of animal life will prove fruitful of results to those who aspire to the character of true physiologists.

No work has been as yet undertaken, except that now before us, we believe, professing to treat of the several tissues of animals through all classes and orders, proceeding from the lowest to the highest types; and we are of opinion that a debt of gratitude is due from the physiological world to Professor Quekett for the great labour he has undergone in preparing or securing the numerous specimens from which the engravings have been made, and for the care he has taken that these shall accurately represent what is seen under the microscope. The drawings have been made by the first microscopic artists, under his eye, with the camera lucida; and, as the number of diameters is marked in each case, the relative size of the cells and other structures may be readily appreciated.

Much more might have been said on the subject of this work, but our limits imperatively demand that we should draw this notice to a close, which we now do, earnestly wishing the author equal success in the preparation of the third volume, which we shall anticipate at an early period.

Dr. Beale's excellent work explains in simple language, aided by numerous exceedingly well-executed woodcuts, the construction and use of the various parts of a complete microscope; points out the subjects to which it may be advantageously applied, and describes the character presented by most of the elementary structures and components of the body both in health and disease; and it further gives

full information with respect to the different methods of preserving as permanent objects the various animal tissues. Dr. Beale's book describes the different kinds of cells, the methods of making them, the various preservative fluids, and the several cements used for closing the cells, and contains a variety of other most useful information.

The great advantage of this work is its small compass, and the simplicity of the descriptions, which are freed from all unnecessary detail and complexity.

Recent investigation have shown the importance of combining a certain amount of chemical knowledge with the use of the microscope, the one aiding powerfully the other. The importance of this Dr. Beale has kept in view, and therefore treats of some of the principal re-agents, and of the methods by which the chief constituents of some of the animal fluids, especially the urine, may be detected. We strongly advise all young microscopists to acquire as much chemical information as possible, for they will find it afford essential aid in their investigations.

The work of Mr. Quekett is an illustration of one of the many applications of which the microscope is capable when in able hands ; Dr. Beale's valuable production shows how to apply the instrument, and in what direction researches should be prosecuted.—*Lancet, May* 20.

A Case of Empyema.—By William Sedgwick, Esq., M. R. C. S., L. S. A., *late Surgeon to the North District of St. Marylebone.*

The following case of empyema, in which paracentesis thoracis was successfully performed, possesses many points of considerable interest. The subsequent death of the patient from cholera, after health had been for some time restored, gave me the opportunity of examining the condition of the chest, which was the more valuable from its being an instance of almost complete re-expansion of the side after great retraction.

C. S.——, aged seven years, a delicate boy, of fair complexion, with a timid, downcast countenance. He is stated to have been a strong, hearty child up to about the age of three years, when he had an attack of measles, and was very ill for twelve or thirteen weeks. He suffered from a troublesome cough, for a long time afterwards, and never appeared to recover fully his strength. Subsequently he has been troubled at times with severe headaches, accompanied by great heat in the head, restlessness, and occasional delirium.

In November, 1851, for one of these attacks, of a more severe character than previous, the boy had been subjected to active medical treatment ; his head had been shaved, leeches applied, and mercury freely given for some time, but without affecting the system. It was

during convalesence from this head affection, that he had caught cold, in consequence of having sat up in bed, near an open window, one cold day about a fortnight before christmas. I was called in two days after this had occurred, and found him suffering from an attack of pleurisy of the right side, friction being heard very generally over that part. The treatment consisted in the application of a few leeches to the chest, the weekly condition of the patient preventing the abstraction of more than a very small quantity of blood. Calomel and Dover's powder, with salines were given, and subsequently blisters were applied. Under this treatment the patient improved to a certain extent, and was able to sit up ; but the symptoms of effusion continued, and the examinations of the chest made from time to time, showed that the fluid so far from being absorbed, continued steadily to increase. About the middle of January, the apparent condition of the patient was very similar to that of a person suffering from phthisis ; there was well-marked hectic coming on every afternoon, copious perspirations at night, and a troublesome cough. The physical examination of the chest showed that the amount of fluid effused was sufficient to produce displacement to the left side. Towards the end of January, the right side of the chest was visibly dilated, the increase being chiefly in that part of the chest above the fifth rib. The enlargement at this part went on increasing, so as to produce decided bulging of the walls of the chest, a little above the right nipple. The prominence at this part became daily more and more marked, at the same time that the patient appeared to be slowly sinking, and it seemed very doubtful whether recovery could take place, unless an operation were performed for relieving the chest of the fluid that had accumulated. I had for some time previously suspected that the effusion was either sero-purulent, or consisted probably altogether of pus. The previous history of the case, the well marked hectic, and general condition of the patient, seemed to warrant the opinion that suppuration was going on in the chest. Whilst the physical signs showed that the amount of fluid was considerable, the displacement of the heart, the extent over which the dulness prevailed, and the well-marked dilatation of the right side of the chest, culminating to one point, seemed to leave no room for doubt as to the case being one of empyema, in which nature appeared to be making an effort to relieve the chest by an external opening. But it was very questionable whether the powers of the patient would hold out till the completion of this natural process for his relief. Under these circumstances, the operation of paracentesis thoracis appeared to be indicated as the only thing likely to benefit the patient ; and I accordingly determined upon making an opening into the chest, whilst the condition of the patient was such as to afford a reasonable chance of his being able to bear such an operation.

Having decided upon operating, on February 12, 1852, I proceeded to make a valvular-shaped opening into the chest, a little above the fourth rib on the right side, and three-fourths of an inch posterior to a line drawn vertical with the nipple, the bulging of the walls of the chest being greatest at that part. The operation consisted in drawing

up tightly the skin, and then passing a narrow-bladed, straight bistoury directly inwards to the cavity of the pleura, when a little healthy-looking pus made its appearance. The opening was then enlarged to about two-thirds of an inch in length, and the pus flowed out in full stream, which continued unabated for some minutes. As long as the pus continued to be discharged in a jet, the skin was kept retracted, but as soon as the flow slackened, the tension on the skin was removed, and by covering over the direct opening into the pleura, it served to obviate the risk of air entering that cavity. With the exception of a slight fit of coughing which came on once, and made the pus spurt out more freely, the patient bore the operation quietly and well, and was much relieved by it. A large linseed-meal poultice was subsequently applied over the opening, and a sedative draught given. The quantity of pus discharged in the first instance was about thirteen or fourteen ounces ; it was of a pale, straw colour, about the consistence of cream, and apparently possessing all the characters of healthy pus. The linseed-meal poultices were continued constantly, and the patient was ordered a good diet. The pus, which continued to be discharged very freely from the opening, appeared during the first few days to be healthy, and free from any unpleasant odour.

On the fourth day after the operation it began to smell rather offensive, but at no period could it be said to be fœtid. Very shortly after the operation, the right side of the chest began visibly to retract, and continued to do so till the upper part of the right side of the chest in front presented a completely hollowed appearance, most conspicuous between the clavicle and the line of the nipple ; this retraction, however, appeared much greater than it really was, from the drawing in of the integuments to the opening in the paleura ; the retraction was very evident when the right side of the chest was viewed laterally. Under the treatment pursued the health of the patient improved, and he was able at the end of about four or five weeks to take out-door exercises. The amendment beyond this did not seem to advance, and notwithstaning the wine and nutritious food, which he was able to take in large quantities, his general health was far from satisfactory. He was still much emaciated ; the face very pale, with a pinched suffering countenance ; the pulse small and weak ; and the cough, which had improved after the operation, was now very troublesome. Under these circumstances I thought it advisable to try the effects of change of air by sending him to Margate.

Whilst at Margate he was often out in the open air, and lived well, taking beer twice a day, and eating heartily, and he bathed every morning in the sea. The purulent discharge soon after he went to Margate improved in character, assuming almost the appearance of healthy pus. The following notes were taken in the early part of September, after he had been there about two months and a half :— General appearance somewhat ruddy and fat ; the inequality in the two sides of the chest very marked, the left being more rounded and bulged outwards than natural, while the right side was sunk inwards ;

this retraction was most remarkable on the lateral aspect of the chest, about the fifth intercostal space. Vesicular breath-sound was heard all down the right back, but it was more audible at the apex and base than towards the centre. The aperture in the chest looked healthy; amount of purulent discharge from it moderate, and slightly increased on coughing; during inspiration the flow was not quite arrested, nor were the intercostal space drawn inwards.

He continued at Margate till October 4, when he returned home with a sun-burnt complexion, and looking tolerably robust. The exertion of walking fast brought on shortness of breath and cough, which he did not complain of when he kept quiet. The opening in the chest had a healthy appearance, and continued to discharge a little pus, looking healthy. The general appearance of the chest had much improved since the last examination at Margate. Laterally, from the axilla down-wards, it had nearly resumed its normal condition, and no longer presented the flattened appearance alluded to; in front, the lower part of the chest was rounded and tolerably full. This fullness extended upwards to the right shoulder, which might be considered as the apex, and was bounded by a deep and striking depression, which ran like a broad groove from the outer half of the clavicle, downwards and inwards to the upper third of the sternum. All that part of the chest above and to the inner side of this boundary presented a flattened and, in parts, a hollowed appearance. Behind, the spine appeared curved from the contraction of the right side of the chest, and the right shoulder was drawn down. The respiratory sound was no more perfect than it was when last noticed at Margate; air could be heard to enter at all parts of the right lung, but less completely at the upper and inner portion in front, where the chest was noticed as having a sunk appearance; here the breathing was chiefly tubular, although vesicular murmur could be heard with it. On the left side the chest was very full and prominent; the left nipple was displaced, being on a line vertically downwards from the axilla. The heart was pushed downwards and to the left. He was ordered the muriated tincture of iron and occasional aperients.

13th.—Much improved; the opening in the chest has closed.

Nov. 2nd.—Continues to improve rapidly; has now scarcely any cough; sleeps well at night; appetite and digestion good; bowels regular; face full, with good colour.

His recovery was subsequently complete, and he continued to enjoy good health till Nov. 8th, 1853, when he was suddenly attacked with cholera, which was at that time epidemic, and died after the lapse of twenty-one hours.

Post-mortem examination, thirty-six hours after death.—Body plump, with a layer of fat, about one-third of an inch thick, beneath the integuments of the chest and abdomen. The right side of the chest was less prominent than the left, but not to any marked extent, the

difference between the two sides being chiefly noticeable above the right nipple; the chest below this was well rounded. The cicatrix presented a healthy appearance. The sternum and costal cartilages were removed with some difficulty, owing to the close cellular connexion of the pleuræ on the right side; and in the space so exposed were seen portions of both lungs; and occupying the centre of the space was the large thymus gland, spread out broadly, and closely adherent on its under surface. On the right side, the lung approached nearer the median line than the left; the portion of the right lung visible was about an inch and a half in breadth, and extended forwards from below the lower edge of the first rib to the lower edge of the fifth; a small portion only of lung was seen on the left side above. The colour of the lungs was about the same on both sides, presenting a bluish, marbled appearance. On the right side, the adhesions over the anterior part and towards the root of the lung, although very close and firm, could be separated by careful dissection with a scalpel; and towards the apex they could be almost separated by the fingers, with very little assistance from cutting. Posteriorly and laterally, the adhesions were too close and firm to render it possible to take out the lung entire, and accordingly the seven right upper ribs were sawn through and removed with a portion of the lung for examination. The adhesions in the neighbourhood of the cicatrix were found to be very thick and gristly, and it was only by transfixing the cicatrix that it was possible to trace its exact position on the inner side. The lobes of the lung were closely adherent, and could not be separated. The structure of the right lung, on careful section, appeared healthy throughout; no trace of consolidation or disease was detected. On the left side, the lower lobe of the left lung was closely and firmly adherent to the side and diaphragm, and by loose adhesions to the lobe above; the upper lobe, except where it was connected with the lower, was free from adhesions. Near the middle of the anterior lower margin of the left lung, was a yellowish, cretaceous mass, enclosed in a firm cyst, rather larger than a pea, and closely connected with the diaphragm; the adjoining lung structure was healthy. A similar cretaceous mass, apparently a diseased bronchial gland, of about the same size, was observed at the root of the left lung, close to one of the divisions of the bronchus; this lung also, on careful section, appeared free from disease. The pericardium was thin and semi-transparent; amount of fluid within, small. The other morbid appearances observed were due to cholera, and, although of considerable interest, were not connected with the empyema.

Remarks.—It will be observed that the operation performed in this case differed in some important points from the practice usually followed. No use was made of an exploring needle; this was partly owing to the diagnosis of pus being contained in the cavity of the pleura appearing to be sufficiently established without it, and partly to the extreme sensitiveness of the patient, in whom it was desirable to avoid anything like a double operation. The instrument used was a narrow-bladed bistoury in lieu of the ordinary trocar, and the opening

into the pleural cavity was not direct. It appeared to me that, by making it valvular, the risk of air getting in when the flow of pus slackened, would be guarded against, at the same time that the pus could escape without difficulty. By adpoting this plan, the necessity also for repeating the operation was avoided.

The comparatively early performance of the operation must be considered to have mainly contributed to its success, by enabling the lung to expand fully, which, in cases where the operation is long delayed, it is unable to do, either from being bound down by adhesions, or from becoming atrophied. The youth, also, of the patient was in favour of the operation ending favourably. The opportunity that was subsequently afforded me, by the somewhat sudden death of the patient from cholera, of examining the condition of his chest, showed that the recovery from the empyema had been complete, and that the condition of the right lung was healthy.

It remains only to notice the fact of tubercle having been deposited in two situations on the opposite side, external to the left lung—viz., in one of the bronchial glands, and in the adventitious membrane connecting the base of the left lung with the diaphragm; and that in both cases it had been converted into a cretaceous mass, surrounded by a cyst. The development of the tubercular disease in this case occurred probably a short time only before the performance of the operation, and the natural process for its cure seems to have been effected at Margate. —*Ibid.*

Radical Cure of Reducible Inguinal Hernia by a New Operation; with Cases and Remarks. By T. Spencer Wells, Esq., F. R. C. S.

The author commenced by alluding to two cases in which he had himself operated; to three others which had fallen under his observation; to nineteen operated upon by Professor Sigmond, of Vienna; to thirty-two by Professor Rothmund, of Munich; and to an indefinite number by Professor Wutzer, of Bonn, the inventor of the proceeding; in none of which had any fatal results followed, success having been secured in a very large proportion. He remarked upon the prevailing opinion against any operation for the radical cure of reducible hernia, and traced it to the fatal results of dangerous methods now deservedly exploded, arguing that if any plan could be shown to be safe and effectual the judgment of the profession should be modified. After some observations on different means of effecting a radical cure, he described that of Wutzer, and exhibited the instrument used by him. It consists of a wooden cylinder, a needle passing through it, an outer wooden case, and a screw to bind the case and cylinder together. After pushing a part of the skin of the scrotum before the forefinger, the cylinder takes the place of the finger, the needle is passed through it, (through the sac and integument,) and serves, with

the screw, to fix and bind the cover and cylinder together, so that the invaginated skin, the walls of the sac, and the abdominal integuments, are pressed together with any degree of force that may appear safe and advisable. The instrument is left *in situ* from six to eight days, with the effect of producing adhesion of the whole of the sac, a firm, organized plug filling the inguinal canal. Very little pain is said to be produced. The patient is confined to a sofa until the needle puncture is healed and he wears a truss for three months afterwards, to avoid the danger of the breaking up of new adhesions. Mr. Wells believes that there are grounds for admiting this operation within the province of legitimate surgery, and that the classes of cases in which it should be performed are—1. In strong persons, up to forty or forty-five years of age, when the hernia is of moderate size ; in such persons a perfect cure may be expected. 2. In cases where the hernial protrusion is so large that it cannot be kept up by any mechanical contrivance. Here a radical cure is not to be hoped for, but the evil is so much diminished that a truss can be made to keep up the hernia effectually. He concluded by expressing his belief that, as by this new method the whole of the inguinal canal can be permanently closed, it is far superior to all others, and that the evidence he had adduced of its safety and success should lead to its further adoption in this country.

Mr. Holmes Coote stated that Mr. Jobert de Lamballe had lately injected the tincture of iodine into a hernial sac. Exudation, which filled the entire sac, followed, and a permanent cure was the result.

Dr. Copland remarked that the surgeons present were no doubt able to determine which plan of treatment—that recommended in the paper before the Society, or that mentioned by Mr. Coote—was the most effectual and free from risk.

Mr. Arnott was not quite clear that he understood the principle upon which the instrument exhibited acted. Was he right in supposing that at first a portion of the integument was thrust up the inguinal canal by the finger, which was replaced by the wooden cylinder, and that then the flattened, spoon-shaped piece was laid on the abdominal parietes, and loosely connected with the cylinder by the screw, and the two pressed together with any requisite degree of force by the screw?—that the flexible needle or stilet was then passed through a canal in the cylinder, then vertically through the soft included parts and the upper plate, and retained for seven or eight days? He had little to remark on the mode of proceeding, having had no personal experience respecting it. The number of cases, however, in which it had been resorted to showed that there was little chance of mischief resulting from it. The cases, too, rested upon good authority, many of them having come under the care of Dr. Sigmond, with whom he was acquainted. Provided it could be shown that the cases had remained well for a sufficient length of time after the operation, the proceeding was one of very great importance. Dr. Sigmond had operat-

ed in nineteen cases, out of which fifteen were successful. He should be glad to know from the author of the paper what time had elapsed since the performance of the operation in the various cases, and also what was the condition of parts after the lapse of a year or two. Did the skin remain up in the canal or come down? He might remark that the proceeding of pushing up a piece of the integument into the inguinal canal to cure hernia was not new; the instrument, which had been exhibited that evening, however, to effect the purpose, was novel.

Mr. Spencer Wells replied that Mr. Arnott had correctly described the proceeding. With respect to the time which had elapsed after the operation, the patient remaining well, he might remark that Dr. Sigmond had watched cases for six years. The first case operated upon by Wutzer was in 1847, and there had been no relapse. In his (Mr. Wells) own cases, one was operated upon six, the other four years since; both of these cases he had seen very recently, and they remained well. With respect to the state of parts, after a time scarcely anything particular was to be observed. A hard plug for a time remained in the canal, but this eventually disappeared. With respect to the proceeding mentioned by Mr. Coote, of injecting the hernial sore with tincture of iodine, he begged to observe that only one case in which that proceeding had been resorted to was brought forward, whilst the operation which he advocated had been successfully performed in many instances. The older surgeons had attempted the radical cure of hernia by injecting stimulating fluids into the sac, but the plan was discontinued for fear of the mischief which might result.—*Ibid.*

Lateral Curvature of the Spine, to Illustrate a New Spine Instrument. By BERNARD BRODHURST, Esq., Assistant-Surgeon to the Royal Orthopædic Hospital.

The author considered that lateral curvature depends—1, upon hypertrophy of muscles; 2, upon atrophy of muscles; 3, upon spasm of muscles; 4, upon relaxation and extension of the intervertebral ligaments; 5, upon rachitis; 6, upon difference of length in the lower extremities; 7, upon difference of capacity in the two sides of the chest; 8, upon congenital defects. He showed that in most cases a consecutive inclination of the vertebral column succeeded to the primary curve, and he argued that for the cure of the deformity mechanical means must be especially applied to the latter. After describing the changes in form which may ultimately affect the parts involved in the distortion, he proceeded to argue that pressure should not be applied to the convexity of the curve, but that that extending force should act on the concavity, by which the arch would be, as it were, unfolded. The instrument which he recommends consists of a band fixed to the pelvis, of crutches passing from the pelvic band to

the axilla, of a connecting-piece which unites the crutches, and which is placed at the superior extremity of the primary curve, the whole forming a framework to support the trunk. On this last-mentioned backpiece a lever moves on its axis, connected below to the pelvic band by a screw. The lever rises to the top of the shoulder, which is opposed to the primary curve; it is there joined to a shoulder-sling, which is moulded in gutta percha. A pad having the shape of the convexity of the primary curve is attached by a short arm, with an antero-posterior movement, to the lever. The use of the instrument was illustrated by drawings.—*Ibid.*

A Case of Fatal Asphyxia caused by the Detachment of a Diseased Bronchial Gland, which was Impacted in the Larynx. By George Edwards, Esq., F. R. C. S. of Wolverhampton.

This case occurred in a child of eight years of age, who, while at play, was suddenly seized with symptoms as of a fit. He was quickly carried home; became violently convulsed; although retaining consciousness, and the power of utterance, the countenance became extremely anxious, and he uttered the expression that he should die. In the hurry of the moment there was no opportunity of getting any distinct knowledge of the previous history, beyond the surmise that the boy had swallowed something. The trachea was immediately opened; a little air issued from the opening; artificial respiration was attempted, but without effect, as the child gave but two gasps after the operation, and died. The post-mortem examination revealed the presence of a foreign body touching the under surface of the epiglottis, and extending through the *rima glottidis* into the larynx; the substance was whitish, and covered with mucus. On a very slight examination it was evident that the body was a bronchial gland. Upon slitting open the trachea, the spot from whence the gland had issued was soon observed; it was on the posterior part of the right side, just above the bronchial bifurcation. The opening was ragged and irregular, and communicated with a cavity behind sufficiently large to contain a nutmeg. No other evidence of disease was observed. It was an interesting point to consider whether the suppuration commenced with the gland, or had ulceration taken place around it? Again, did the gland at once pass into the trachea, or was it a gradual process? The author offered some observations on the relation the case bore to certain medico-legal points. The detached mass had been examined by Mr. Quekett. It was of irregular shape, contracted in the centre and of a light bluish colour, streaked with black and white. Its outer surface presented traces of epithelium and mucus; one part was coated with what appeared to be inspissated mucus. These sections were found to be made up of rounded cells, connected together by fibrous tissue. Two sections of bronchial glands were examined for the sake of comparison. A similar structure in all respects was observed, and

Mr. Quekett was of opinion that the impacted substance was a portion of an enlarged bronchial gland.—*Ibid.*

Elasticity of Arteries considered as a cause of Animal Heat.

About seventeen years since, whilst making some experiments with caoutchouc, (Dr. Winn) was forcibly struck with the property it possesses of evolving heat when suddenly elongated, and was led at the time to infer the probability of other bodies being similarly endowed. The elastic coat of arteries, especially, appeared to be one of the substances likely to exhibit this calefactory principle, and in the event of this being the case, he thought it would not be unreasonable to conclude that the incessant contractions and dilatations of the arteries during life must form an efficient source of animal heat. Three years subsequently he was induced to resume the subject, and upon making an experiment with part of the aorta of a bullock, he was much gratified in being able to verify his previous conjecture. The experiment was performed as follows:—Having cut off a circular portion of the descending arch of the aorta, above an inch in length, he laid it open, and carefully removed its external and internal coverings. He then pulled it to and fro with a continuous jerking motion (in imitation of the cystole and diastole of the heart for the space of about a minute. Immediately on discounting this movement, he placed it in the bulb of a thermometer, when he had the satisfaction of noticing, after a period of about two minutes, that the mercury had risen as many degrees. On removing the thermometer the heat diminished rapidly. To be certain that the increment of heat was not derived from any other source than that in question, he took the precaution of covering his finger with a double layer of flannel, to prevent the communication of heat from the body; he also covered his mouth with a handkerchief, to guard against the warm breath effecting the thermometer, whilst watching the progress of the experiment. It was also right to mention that the experiment was performed in a room without a fire, the temperature of the air being 55°. There were several difficulties to contend with during the investigation. The chief impediment appeared to be the moisture of the artery, which, by its evaporation, had a tendency to carry off a portion of the heat. However, by carefully drying the artery with a cloth, he succeeded in obviating this difficulty to a considerable extent, and was enabled to perform the experiment twice consecutively in a satisfactory manner. He had also, within the last fortnight, repeated the experiment in the presence of a medical friend with an equally satisfactory result. His attention was often arrested, whilst conducting the experiments, by other mechanical analogies between caoutchouc and the elastic coat of arteries. Like the former, the latter could be elongated to twice its ordinary length, and on suddenly stopping the tension, would return to its usual dimensions with considerable force and a snapping noise. From the preceding observations, Dr. Winn concluded that the generation of

animal heat could now be fully and satisfactorily explained. Physiologists, after having clearly proved that a great portion of animal heat was the result of chemical changes in the blood, yet confessed that a residuum of heat could not be referred to this source; this residuum he considered, arose from the mechanical action of the arteries. It would be exceedingly difficult to determine the precise quantity of heat given off during each beat of the artery; but if the development of only a very small quanitity was admitted, it necessarily followed, from the circumstance of the action of the arteries being in incessant operation during life, that the heat must quickly accumulate to a great extent; and it is even probable that the body, unless cooled by the functions of the skin and lungs, would, in a short space of time, become preternaturally hot. The following physiological and pathological facts appeared to corroborate the views he had taken as to the mechanical source of heat:—1st. The minute distribution of the arteries to every part of the system ensured a general and equal destribution of heat. 2nd. The *rigidity* of the arteries in old age was a probable cause of the diminution of animal heat at the close of life. 3rd. The increased warmth of the body after exercise seemed to be readily explicable upon the principle of increased force of the arteries. 4th. In many diseases of the lungs, when their functions were at fault, and at a time when the arteries were beating with great strength and velocity, the heat of the body was found to be above the usual standard. 5th. Medicines which diminished the action of the heart and arteries almost invariably reduced the temperature of the body. 6th. The heat of local inflammation, in cases where the constitution did not sympathise to any extent, cannot be satisfactorily referred to any other source, as the arteries immediately in the neighbourhood of the affected part are often throbbing violently, when the capillaries, which are supposed to play so important a part in the chemical theory, are generally considered to have their action impeded. His (Dr. Winn's) friend, Dr. Crisp, has hinted that many cold-blooded animals are remarkable for the great elasticity of their arteries. This fact could not affect his theory. The languor of the circulation in this class of animals more than counterbalances any calefactory effect which might otherwise be produced by the resiliency of their arterial structure. With respect to the nature of the mechanical force he had been investigating, little could be said. It might possibly be a little molecular friction; it was clearly, however, of a different nature from ordinary friction, which had also been considered a cause of animal heat, but Dr. Winn thought erroneously so, inasmuch as there is found everywhere, on examining the mechanism of the human frame, that the most efficient means of defence have been provided against its effects, as seen in the various synovial and serous membranes, &c.—*Ibid.*

Compression of the Subclavian Artery.

We have it laid down as an axiom in the greater portion of our class-books, not only on surgery but also on anatomy, that to com-

mand hæmorrhage from the subclavian or axillary artery, in amputation of the shoulder, we have only to compress the vessel from above the clavicle, against the first rib, not making the pressure directly downwards, but forwards and backwards, Presumptuous as it must and no doubt will appear for me to think of differing from such high authorities, yet, with the greatest deference to all and each of them, I cannot but think that, if we look at the position which the subclavian occupies at the point where it passes over the first rib, we will see that it is no such easy matter to compress it as one might first imagine. But were there no anatomical difficulties to be overcome, there is still another obstacle to using pressure on the subclavian artery above the clavicle. And what is this? Spasm of the muscles which surround this joint at the moment of operation. We have our patient, with his arm stretched out at a right angle with the body; we have our assistant trying to use compression in the way taught; we transfix the deltoid,—and the moment we do so, contractile spasm follows, the effect of which is, to throw up the clavicle, deepen the arch, and make tense the fascia: thereby putting it completely out of the assistant's power to use compression on the vessel, at least with any effect.—*Ibid.*

Account of a large Villous Tumour. By Mr. QUAIN.

Large Villous Tumour, removed from the rectum of a lady, sixty-eight years of age. She began to suffer inconvenience in the bowel seven years ago, and for the last two years was in constant pain. Whenever the bowels acted, and even when flatus escaped, the tumour descended out of the bowel; at each time of its descent there was a loss of blood, often to a considerable amount; the mass was replaced by a servant. From the loss of blood, and the copious discharge of slimy mucus, there was much debility of the whole frame. The patient's countenance, lips and tongue especially, were blanched. The tumour was fully four inches long, and about two inches in thickness; it was soft, and separable into a series of loosely connected lobes; the surface was covered with blood and slime. The connexion with the bowel was about three inches from the anus, the base being about two inches wide. Since the removal of the tumour (now three weeks ago) the patient has done well in all respects. From having been preserved in strong spirit, the growth has been corrugated; it is now the size of an orange, and from the same cause it is rounded instead of having the lengthened shape it originally had. It is formed of a series of elongated processes springing from a common base, and having the appearance of enormously enlarged villi. There is no indurated part in the whole tumour. The growth offered a good example of the "zotten krebs" of Rokitanski, Gerlach, and other German writers. Dr. Jenner found the basis of the growth consisted of white fibrous tissue, from which numerous processes extended; these processes were highly vascular—small arteries were detected even in the most minute. Each

process was covered with a delicate basement membrane, on which was a layer of columnar epithelium.—*Lancet, May* 6.

The sanitary conditions of Light and Epidemic Cholera. By William John Thomas, Esq., M. R. C. S., Kirkdale.

I perceive, from the perusal of the *Lancet*, that an Egyptian darkness still defies the efforts of the medical philosopher to ascertain the causes of Asiatic cholera. It does not appear to me that we have made much progress in our attempts, since 1832, to define the origin of the pestilence. We are told it arises from miasmata, and that draining will remove the cause of the cholera; and yet the pestilence has assumed its most vivid form in the burning desert, where no water exists. We are informed that it rages with violence in crowded towns on the level of the sea; then the converse is stated, that it attacks with undiminished power the scattered cottages on the mountain's brow. It ravages the arctic regions—the temperate and tropical zones. It flies on the wings of the wind, and, with equal rapidity, on its own wings, penetrating through the waves of advancing winds. Now, all these facts and counter-facts—evidences for, and testimonies against, our special theories—seems to me to indicate the important corollary, that our researches and observations have been directed to facts and circumstances which have no special or direct relation with the primary occult causes of the epidemic cholera. As I have read with interest all the articles which I have observed in the *Lancet*, however numerous they might be, hoping to obtain some clue, or to meet with some original idea, I have thought that there might be other of your readers who have consulted your pages with the same view, and that therefore I might be pardoned if I directed the attention of the profession to an element of the first order, whose "sanitary condition" may possibly be the occult cause of the epidemic cholera. Your correspondents have instituted their researches in air, earth, and water,—permit me to suggest that the primary element of light should meet with an attentive consideration. I have no wish to enter into a controversy upon the subject, having no time to spare; but it would certainly be a satisfaction to me, if any of your talented correspondents would institute a series of experiments, in order to ascertain if certain conditions of light may, or may not, exercise an influence on the progress of the disease. Not to occupy too much space, I will throw a few thoughts into the form of propositions, for the consideration of the profession.

1. The cardinal symptom of the Asiatic cholera is the downfall of the circulation of the blood.

2. The proximate cause of the profound collapse is the partial or complete paralysis of the nerves of organic action.

3. The paralysis may be caused by an alteration in the polarity of

the vital principle traversing the nerves—by a transversation of the longitudinal and normal transits.

4. The principle of life is—light.

5. The vegetable organization may be considered the zoometer of animal life.

6. The health of vegetables is maintained under the influence of normal light.

7. By cutting off the greater portion of the luminous rays, the organic action of the plants operated upon becomes paralyzed, and their weight lessened.

8. Under the green, yellow, and orange rays of the spectrum these effects progressively increase—disease becomes apparent; but the minimum of organic intensity is attained under the least refrangible —the red ray—when death is the result.

9. When the rays of solar light are filtered or transmitted through a prism of earth light, the polarity of the solar light is altered.

10. The least refrangible rays are epi-polarized; but the invisible actinic rays, and the violet, indigo, and blue rays, are peri-polarized.

11. The unity of the normal equilibrium of the rays of light is dissolved, and all the relations dependent upon the normal unity are dissolved or modified.

12. If the normal unity and equilibrium of the rays of light be an essential condition of the sanitary *status quo* of animal and vegetable organisms, the dissolution of that unity must be prejudicial to the integrity of organic action.

13. The least refrangible rays of the spectrum then operate on the organisms uncontrolled by the healthy counterpoise of the superior rays of light.

14. According to experiments upon which the eighth proposition is founded, it appears that the predominance of the least refrangible rays is fatal to organic vitality.

15. The same cause which relaxes the tension of the magnetic vinculum which binds in one harmonious unity the chromatic triadism of normal light, at the same time alters the polarity of the constituents of light.

16. For that cause is the repelling power of the negative electricity of the earth, evolved in abnormal abundance, by a mathematical alteration in the curves of the great polar element circulating in the earth.

17. The cause of the alteration from the normal circle to the ellipsis, parabola, and hyperbola in the dynamism of the magnetic elements traversing the globe, is the same which operates in effect-

ing the variations in the presumed *status* of the iso-clinal and iso-dynamic lines, the internal pressure of non-polarized light in the structure of the globe.

18. And finally, the cause of the internal abnormal pressure of non-polarized light in the structure of the globe may be traced to the secular and periodical Helionphotic obscurations; and therefore the cause of the Asiatic cholera, which has traversed the globe, is of a cosmical origin and universal parentage.

I wish to call the attention of your readers to important papers "On the Influence of the Solar Radiations on the Vital Powers of Plants," by Dr. Gladstone, and "On the Chemical Action of the Solar Radiations," by Robert Hunt, and to portions of the President's Address, published in the *Transactions* of the British Association for 1853,—all which papers have reference to the subject under consideration.—*Ibid.*

Phagedænic Ulceration of the Knee. By GEORGE LEWIS COOPER, Esq., F. R. C. S., Surgeon to the Bloomsbury Dispensary.

R. W——, aged thirty-four, a native of Essex, has been married eight years, has had four children, only one of whom is now living, and is again pregnant in her seventh month; was admitted, under my care, Oct. 17, 1853, for ulceration of the integuments of the left knee. She states that her husband is the driver of a fire-engine, and is occasionally "overcome" by drink; also, that her health previous to her marriage was always good, but since that period it has failed, suffering much from debility and despondency. The disease commenced just below the inferior border of the patella; it spread to the outer part of the joint, in width adout half an inch, with a yellowish, unhealthy surface, quite free from granulations, secreting a sero-purulent fluid. The edges are rugged and undermined, and the margins inflamed, of a dingy red hue. The pain is described by her as excessive, of a burning, agonizing character. Her health is much impaired. The countenance is pale and anxious, from sleepless nights; the pulse is slow and weak; tongue tolerably clean; and the bowels regular. Her appetite bad and fastidious. Ordered, iodide of potassium, twenty-four grains; infusion of cascarilla, eight ounces. Mix. Two tablespoonfuls twice a day. Compound ipecacuanha powder, ten grains. Ointment of oxide of zinc to the knee.

24.—The ulcerative process has increased half an inch in the direction of the upper part of the joint; it looks angry, and the pain is excessive. Repeat the mixture and powder. Water dressing, under oil-silk, to the knee.

Nov. 2nd.—The phagedæna has extended to a point opposite to the inner condyle of the femur, is now in a crescentic form, and, from appearances, is indisposed to stop; her appetite is bad; the pain is very

severe, but she sleeps better. The fœtus in utero she describes as being "very lively." To have two drachms of dilute nitric acid, half-a-drachm of tincture of capsicum, and eight ounces of infusion of columbo. Two tablespoonfuls three times a day. To have a third of a grain of hydrochlorate of morphia at night, in form of a pill. Apply a lotion to the knee, containing half-a-drachm of calomel, six grains of opium, and six ounces of pure water.

9th.—The phagedæna has not spread any further, and she feels in every respect much better. Repeat the preceding remedies.

24th.—The ulceration has entirely stopped, and the healing process on the outer part of the joint has commenced. Her health was much improved, and the pain is considerably less. She sleeps comfortably at night. Repeat the lotion and pill.

December 10th.—A considerable portion of the disease below the patella, and on the outer and upper part of the knee, has healed. She is daily improving in health and spirits, and feels the child moving. Repeat as above.

24th.—Is progressing favourably in every respect. Repeat the remedies.

January 10th.—The ulceration has nearly healed. Continue the remedies.

16th.—The phagedæna has quite healed, but she states that she was confined, yesterday, of a dead child. She is going on very well. Ordered half-an-ounce of castor-oil directly, and two tablespoonfuls of saline camphor.

28th.—Is quite well.

Remarks.—This form of phagedænic ulceration about joints, which I believe to be rather uncommon, I have witnessed in a few other instances, and am inclined, from her history, to assign its cause to a syphilitic taint. In a case now under my care, where the elbow is the seat of disease, there are other symptoms present, which leave no doubt in my mind of the existence of this evil; but the difficulty which invariably presents itself in arriving at the truth, proves oftentimes a serious obstacle to our progress in forming a correct diagnosis. In her statement to me, she positively denies having had at any time a venereal sore, or anything approaching to it, but admits the irregular habits of her husband; and, further, that after a former confinement, an eruption, evidently rupia, appeared over the surface of her body, followed by a scaly eruption on the child, with ulcers and fissures at the anus. We must, therefore, form our opinions and definite conclusions from circumstantial evidence; at the same time cautiously watching the result of our treatment. In the case now related my opinion justified the remedies adopted, as was proved in the final result; but the question arises, as regards the fœtus in utero, what was the cause of the death of the child? She had no mercury administer-

ed internally, and the iodide of potash, from which agent I have seen very powerful effects proceed, was omitted two months previous to the uterus expelling its contents. Could it have been from the nightly administration of morphine to procure sleep, and ease from pain? I think not; but I am disposed to agree with the patient herself, that the excessive pain she endured, and her anxiety and depression of spirits, were the immediate cause of her misfortune.—*Ibid.*

Gangrene of the Lung.—By Robert Molloy, M.D., M.R.C.S., &c.

In the pages of the *Lancet* for 1850 was published a case of mine of pulmonary abscess with ultimate recovery. The accompanying case which came under my notice a little subsequently to that date, was minutely observed by me, not alone on account of the interest it possessed in itself, but from its general resemblance in all essential particulars to abscess of the lung. Limited gangrene of the lung is not especially a rare disease, and instances of recovery are well authenticated, as well as sufficiently numerous, still the almost perfect identity of pathological character existing between it and pulmonary abscess has not been so much instead upon as I think it deserves, as I shall endeavour to show in the course of some brief remarks at the termination of this report.

D. C.——, aged forty-nine, a finisher in the bookbinding business, visited me on August 27, 1851. Has been uneasy for a fortnight or so without knowing what ails him, and finds the last three or four days that this malais is increasing. He complains of weakness and a sense of discomfort, not amounting to pain or even obstruction deep in the left side of his chest, inability to insptre freely and a feeling of coldness and want of power about the heart; face haggard and pale, with a yellowish tinge, and as his eyebrows are naturally overhanging and bushy, his countenance at present is singularly unprepossessing. No cough. It is necessary to mention here that his habits formerly had been very intemperate, but for the last two years he had wholly abstained from drink of every kind.

31st.—Has no improvement to report; is still uneasy and depressed, without knowing why. On examining the chest, every part good on percussion, but the stethoscope reveals an occasional crackling over the middle third of the left lung anteriorly, resembling the friction sound of pleura, and a peculiarity about the inspiration, which is prolonged as if divided into two, sometimes three, separate parts, each requiring a distinct effort of will or rather contraction of muscles to effect it. There is no pain on inspiration, or by pressure or otherwise. Ordered, blister; opium, half a grain, in pill, three times daily.

September 1st.—Left of work.

4th.—Lingered on in an unsatisfactory condition, sometimes ap-

pearing to have derived benefit from the remedies exhibited, at others falling off altogether in the space of a few hours. On this day he visited the Regent's park Zoological Gardens, where he was loitering about some hours. The fact, too, of his having walked there and back may be fairly accepted as evidence of muscular strength, and that the distress in breathing could not have been great. He called upon me in the evening, and did not seem much fatigued by what he had done.

6th.—Saw him at home to-day, as he was afraid he had caught or rather increased his cold by standing about to view the animals; at this visit the *first* opportunity was afforded of inspecting the scanty expectoration. A sensation of weakness rather than pain was felt in the chest, referred more to the heart than lung. Cough, too, began to come on. A blister was applied to his side, and on the following day another to his back.

8th.—Blister risen well, passed a good night, and feels more comfortable; has no pain or uneasiness in chest whatever, and is able to inspire deeply without inconvenience; cough occasional only, not particularly troublesome; expectoration dirty in colour, semi-purulent, very offensive; tongue coated; pulse 102, not deficient in power. Ordered, gentian and soda mixture; wine, an ounce and a half, four times daily; beeftea, &c.

10th.—Somewhat improved in appearance, and there is more of the restoration of his old look when in health; is up and dressed, but disinclined to attempt any exertion in consequence of the feeling of weakness deep in the lung; expectoration, in quantity, six times as much as yesterday, more purulent, with gangrenous odour. A curious circumstance was pressed upon my notice while speaking with him. All at once a disagreeable smell filled the room, from the escape of fœtid gas, belched up, as it were, from the pulmonary cavity; he then began to cough and spit, remarking the fit was upon him, with the "fishy taste" in his mouth, and would probably last a quarter of an hour. This was repeated three times subsequently in the course of the day.

12th.—Again there is great increase of fœtid sputa, semipurulent, dirty grey and brown, with much of fluid excretion. The feeling of uneasiness leading to cough, and the recurrence of the "fishy attacks," have been much more frequent, causing this extra expectoration. There is, however, no pain in the chest, but a gurgling sound can be heard at a distance while he is speaking; pulse still 102; slept fairly in the night, and takes nourishment tolerably well. Ordered, chlorine solution, (P. Ed.,) one drachm; solution of opium, infusion of gentian, every four hours.

14th.—Cough has been troublesome, with great quantity of expectoration; possibly this may amount to eight ounces, semi-purulent, with much pituita, brownish, and extremely disagreeable. These at-

tacks have been more frequent since yesterday, and he has no power to prevent them ; still he says the medicine removes the unpleasant taste and fœtor for some time after he has taken it ; pulse 98, stronger ; sits up without discomfort, and is willing to believe himself stronger; liquid nourishment is taken with enjoyment, and he wishes for more ; the solid he cannot manage so well. A little crackling noise is heard in the chest before and behind, both more like pleura-friction than anything else ; but there is not the double and three-fold inspiration which had been noticed before.

15th.—Expectoration a little less—an ounce or so—but has undergone a manifest alteration in character ; floating in a dirty-looking liquid are numerous globular, puriform masses, white, yellow, and green, with others of a rusty colour, from intimate mixture with blood, all easily brought up. No material difference in the number or character of the attacks, (paroxysms,) nor yet in the fœtor of the sputa, or in his appreciation of it. Ordered opiate liniment to the chest.

16th.—No pain in the chest, and expresses himself relieved by the liniment. Expectoration same in quantity as on 14th ; contains large white purulent masses, mixed with a quantity of frothy mucus ; less of the dirty-coloured water, and more of the rusty sputa, encouraging the idea of a scretion from a more healthy surface. Odour still very penetrating and offensive. Paroxysmal attacks have come on every two hours ; first nauseous fumes of gas arise, quickly succeeded by cough and expectoration ; they are not, however, very distressing, as there is plenty of time in the intervals of the attacks to recover from the depression. Pulse 102. Some few greyish spots are seen on the margin and apex of the tongue, indicating commencing ulceration. Increase chlorine to two drachms each dose ; take ale.

19th.—The expectoration has notably decreased, not amounting to more than five ounces, and necessarily with diminished cough. The "fishy attacks," too, less frequently recur, and the intervals are now four or five hours, or even more. The sputa, not so offensive, are globular, puriform masses, mixed with much pituita and bronchial secretion. Tongue not so much inclined to ulcerate ; pulse 100. Increase chlorine to two drachms and a half.

20th.—Complains more of pain than at any period of his illness ; the pains are of a darting, shooting description, not over severe or continuous, proceeding from left side of the chest, and extending over to the right, together with cough and increased expectoration, amounting to eight ounces. Much of this is acute bronchial, the result of cold he has caught, or rather influenza, which is now prevalent. Pulse 100, stronger, beats distinct, and do not run into each other as they once did. Thinks he has too many visitors of an evening, as he finds talking to them occasions him distress. On examination of the chest, there is detected deep-seated thick crackling, more distinct in *expiration* than in inspiration, and more decided towards the latter end

of this than in the first part; there is likewise a rough pleural sound mixed up with it. Blister to left side.

21st.—Expresses himself much relieved by blister, which has removed all the pain in chest, and made the cough much easier. Pulse 96; expectoration only half the quantity it was two days ago, composed of little pituita and bronchial mucus; thick pultaceous fluid, very like gruel, and with certainly diminished fœtor.

22nd.—Was so much troubled by cough the greater part of the night as to disturb the rest of the people sleeping above. It has even continued to-day more frequent than usual, together with greatly increased expectoration of the semi-purulent, thick, gruelly kind, and a more frequent repetition of the unpleasant odour, arising from escape of fœtid gas through the mouth. Appetite good; urine rather acid, without sediment.

23rd.—Cough was very annoying about three P. M. yesterday, and continued for a long time, leading to a curious and unusual sort of expectoration. The bulk is a darkish, dirty-green water, with puriform masses floating on the top, which was brought up, he says, not by vomiting, but in a stream "flowed from him like so much water from a tap." This has now subsided, and he feels no discomfort of any kind; urine copious, high-coloured, and very acid.

25th.—The quantity of expectoration since last report (yesterday) is greater by about three ounces, and easily excreted; thick, purulent, and very offensive, though it does not appear so to him. He says the cough is materially better, and feels equal to work as in his best days. Uneasiness of chest would not be regarded if his attention were not directed to it. Pulse 112, but had been excited previously to my visit. Nothing further is heard on stethoscopic examination than has already been mentioned, a deep-seated crackling, like pounding lard on a slab, with some pleurafriction sound, being all that can be distinguished. Increase chlorine to three drachms.

26th.—Pulse much excited to-day, 120, one beat running into the other, nothing unusual to account for it, neither increased pain, cough, nor expectoration. Is it the stimulating power of the chlorine? The only inconvenience he complains of is an occasional griping pain in the bowels, with a tendency to diarrhœa, which has been teasing him for a day or two. Perspirations continue at night, not much or profuse, and have diminished since he slept alone, now two nights. Castor oil, half an ounce, directly. Diminish chlorine to two drachms.

27th.—He has had two copious evacuations, bringing away a large quantity of dark, fœtid, and very offensive substance, (putrilage.) Cough and expectoration decidedly easier, the latter being more healthy in appearance, and not exceeding six ounces altogether. Resume the opiate liniment to the chest.

28th.—He has spat up quite double the usual quantity of expectoration, which flowed from his mouth so rapidly in the course of yesterday, that he was unable to put down the spittoon for a considerable period; in quality there is no difference, although he asserts most positively it is not so offensive to himself as formerly. Pulse 96. As far as to-day has yet gone, expectoration is less in quantity than it has been for days previously, but under any circumstances it is remarkable that the aggravation of the cough and consequent expectoration is periodical, coming on every second day.

Oct. 1st.—Complains of pain over the *right* side of the chest, which came on this morning, shortly after leaving his bed; it is continuous, slightly increased on motion; tongue rather creamy, inclined to be coated; pulse 112; expectoration less, fœtid odour decidedly diminished, more healthy in appearance, and not greatly dissimilar to the chronic bronchial secretion of elderly people; bowels rather confined, and to this perhaps any little malaise may be attributed, for there is no degradation of the symptoms to account for it. Ordered castor oil and a mustard poultice.

2nd.—Bowels relieved twice, and thoracic pain almost entirely removed by poultice; that which remains would hardly be felt were not his attention directed to it. Expectoration similar in quantity, but is more purulent than usual—that is, more uniformly so, and contains less of bronchial mucus. Expresses himself highly pleased that the "fishy" attacks no longer come on, and that he has experienced nothing of the kind for a week. Pulse 94, full and strong, with deliberate and distinct beats. Has no desire for increased quantity either of food or drink.

4th.—Cough occasionally troublesome, without difference in, or increase of, sputa. The middle third of the lung posteriorly and below the inferior angle of the scapula is more permeable than heretofore to air, which causes a dull, heavy, crackling sound in the thick fluid, while immediately to the left, near to the angles of the ribs, a small cavity is detected, into which air enters with a dry cavernous respiration. The space over which these sounds are heard is certainly smaller than at the last examination, and affords a hope, well grounded too, of the eventual closure and extinction of this cavity. Ordered gentian-acid and opium mixture.

15th.—Pulse 86 only, small, expressive of muscular weakness; at first view not at all satisfactory, but explained by the fact of having been on his knees a long time, until he had felt considerable weariness. Complains of wandering pains about both sides of his chest. Expectoration similar in character, rather more profuse, with a tendency to return of fœtor. Ordered a blister; blue-pill, one grain each pill; iodide of potash, three grains, in tonic.

19th.—Favourable progression until yesterday, when he felt pain in the left flank, from which relief was only attained by lying on the opposite side, and doubling up the trunk. No increase of pain to-day,

but it is continuous, and seems to him as if it had taken away the power of evacuating his bowels, which are consequently confined. Pulse 90 ; tongue inclined to be coated ; skin free ; urine deposits highly-coloured purpurates for the first time since his illness. Blister to the flank ; castor oil directly.

20th.—Lies on his back, rather inclining to the right side ; easier ; pulse 80 ; expectoration of a light bronchial kind, very satisfactory. Can only attribute this attack to the poultice, which had been applied to a previous blister, becoming cold.

31st.—Expectoration much smaller than even at the last report (in my notes), scarcely exceeding ten ounces in twenty-four hours, wholly chronic bronchial in character, and differing little from that he is always accustomed to spit when in health. Feels a sensation as if his lung were gaining increased strength every day, so that he can take a deep inspiration, not only without discomfort, but without apprehension even. There is, however, a mucous rattle in the bronchi when he speaks much or long together.

Nov. 7th.—Has been going on well, expectoration decreasing almost daily, until yesterday, when he was somewhat alarmed by the appearance of bloody striæ in sputa ; these, however, are superficial, not blended intimately with the secretion, and may have come from the tonsils or fauces or, what is more probable still, from the secreting surface of the tissue of the lung itself. Urates present for the last few days seem to have depended upon diminished cutaneous transpiration from cold, and have now entirely disappeared.

21st.—For the last two days he has been exciting himself mischievously—first, by getting into a passion ; to-day, by argument hot and hasty : the consequence is, the expectoration of a larger quantity of blood than has yet been thrown up—nearly a teaspoonful ; it is also increased in quantity, and more purulent. Pulse 92. Blister.

23rd.—A few blood-streaks are perceptible in sputa, but much less than yesterday ; cough rather troublesome ; expectoration more puriform than it has been for some time, tenacious, and approaching in general character nearer to that of pneumonia ; pulse 84.

27th.—Nearly double the quantity of expectoration there was some days ago, bronchial in appearance, brought up without difficulty, but occasionally containing bloody striæ. In no other respect does he fail, so that the recent unsatisfactory symptoms may not unfairly be attributed to a slight attack of influenza, now very prevalent. Acid tonic mixture.

Dec 2.—Went to Holloway for change of air ; continuing to bring up small quantities of blood at intervals. His recovery after this date was rapid and uniform, so that eventually he was enbled to resume his employment.—*Lancet, May* 13.

Amputation at the Knee-Joint.—By H. G. Potter, Esq., F. R. C. S.

Amputation at the knee-joint is an operation so rarely performed, that perhaps the following case may be deemed worthy of a place in the pages of the *Lancet*.

No operation has been more unreservedly condemned by the profession at large than amputation at the knee-joint. In the *Lancet*, there is a short notice of Velpeau's operations, having the following heading: "Amputation at the Knee-joint—Experimental murders." In spite, however, of this indiscriminate proscription, successful cases do occur, though of course they are rare, for few men will undertake to perform an operation upon which a ban is placed.

In the case I am about to mention the leg was so flexed upon the thigh, that if amputation of the thigh had been performed it must have been in the upper third of the limb, and a very short stump would have been the result, as well as a severe and dangerous operation.

"From Jæger's collection of the published cases of amputation at the knee-joint, it appears that out of thirty-seven about twenty-two have had a favourable, and fourteen an unfavourable, result."

If we compare this proportion with the average frequency of death in amputation of the thigh, which has been often stated to be from fifty to seventy or seventy-five per cent., we find, even if we take the lower average, that the result is by no means in favour of amputation of the thigh, and certainly there is nothing to call for the utter rejection of the one, and universal adoption of the other operation.

The only cases, so far as my information goes, which have been performed in this country, are, two by Mr. Syme, one by Mr. Fergusson and one by Dr. Williamson. Success attended three out of the four operations. Messrs. Syme's and Fergusson's patients did well; while in Dr. Williamson's case the patient did not die until nearly four months after the operation, and therefore not from its immediate effects. The case which has called forth these observations also ended well, and makes in all five cases, four of which have terminated successfully.

My object in making these remarks is not for the purpose of extolling amputation at the knee-joint, but simply to endeavour to rescue an operation, sometimes successful, from unmerited obloquy. I will now give a short report of the case.

Harriet S.——, aged forty, was admitted into Newcastle-upon-Tyne Infirmary on the 8th of December, 1853. She states that about twenty years ago she knelt upon a small stone, which gave her great pain in the knee. From that time until about six months ago she had severe pain, at intervals, in the joint, but was not laid up. During the last six months she has been confined to bed, and though

everything seems to have been tried which was likely to do good, the disease increased, and the leg became more and more flexed until, as at present, it has reached the utmost degree possible. Any attempt at extension gives intense pain; some tortuous sinuses run down to the bone; and there is every symptom present which indicates ulceration of the cartilages. She is very thin and hectic, and is extremely anxious to have the limb removed.

Operation.—Dec. 13.—An incision commencing a little above the middle of the external condyle was continued across the knee, round the upper half of the patella, to the middle of the inner condyle, and ended a little above it. This incision separated the patella from its superior attachments, and opened the joint. The ligaments were next divided, and the saw introduced behind the condyles, which were with the greatest facility sawn through. I used the saw I described in the *Lancet* of 1845, and which will be found to be of great use in such operations. The knife was now placed behind the joint, and a full-sized flap formed from the back of the leg. No difficulty was met with in any part of the operation, and the flaps came nicely together, in which position they were retained by sutures and plaster. Chloroform was successfully administered by Mr. Gibb, our talented house-surgeon.

On examining the joint after removal, the cartilages were found to be ulcerated, and the synovial membrane pulpy.

Dec. 14th.—There is a remarkable change in the countenance this morning. From the time she entered the hospital, until to-day, she has had a very haggard look; now, however, the countenance has assumed a placidity which contrasts very favourably with its previous disturbed appearance. The pulse is quiet and regular, and she rested well during the night.

From this time the case went on well, the flaps united by the first intention, the patient acquired strength and flesh, and was discharged cured on the 17th of March, 1854.

Should I again perform this operation, I would remove the diseased synovial membrane from the upper flap, because I feel convinced that this diseased structure was the cause of a discharge which continued much longer from an old sinus than would have been the case had the synovial membrane been removed.—*Lancet, May* 17.

Paraplegia; Recovery.—By Dr. Budd.

Abraham G——, an engine-driver on a railway, aged thirty years, and married, was admitted Nov. 30th, 1853.

The patient has always enjoyed good health, and never been laid up with rheumatic fever or any other affection; he has been exposed to sudden alternations of extreme temperature, but did not feel any ill

effect from this circumstance. The man has drunk pretty freely of rum during the last fourteen years, but less so for about two years prior to his admission. There is no instance of tubercular disease in the family. Nine months before admission, whilst stooping to attend to his fire, half a pint of blood gushed from his mouth, escaping to a distance of about two feet from the spot where he stood. He had not had any coughing prior to this attack, or any pain in the stomach. About seven months afterwards, (viz., two months prior to his application here,) he spat blood again to the extent of half the former quantity ; this was also dark in colour, and came up without couhing. Two days after the last appearance of blood the patient passed some fluid of the same kind from the bowels, and continued to do so until a short time before admission. He has had medical attendance, and the weakness of the legs has increased gradually for two or three months since he first perceived it. It should be stated that six or seven months before the present inquiry, he noticed a little tremulousness of the legs, without numbness ; he found that his lower limbs grew weaker, so that he could not walk with the same steadiness, and could not carry the same weights. Sensation remained quite perfect, and he cannot assign any reason for this attack. For the last nine months he has also had pain at the bottom of the back ; these pains are not worse at night ; they preceded the uneasiness of the legs by two months, and are confined to the bones of the sacrum. The patient fancies the thighs are as strong as ever, the weakness lying below the knee. He has suffered from headache for the last two months, though never from gout or rheumatism ; pains in the head have been constant the last nine months, but there are none in the vertebræ above the sacrum. *There is no difficulty in passing urine* ; the legs do not jump, and there is no uneasiness in them. Both limbs are affected in the same way, there is great tenderness in the bones of the sacrum ; and for the last two or three weeks he has been prevented from sleeping by pains in the head. He cannot assign any special region as being the seat of pain in the back ; the arms are not affected.

State on admission.—Complexion pale ; dark hair ; chest well-formed ; the man seems to present a slight depression in the right infra-clavicular region ; he complains of pain and throbbing in both temples, and much uneasiness over the sacrum, which is very tender upon pressure. He does not walk so well as generally. Breathing 28. He says he has breathed more quickly since Nov. 24.

Dec. 2nd.—Pulse 62. Respiration 18. Pain over the junction of the parietal with the frontal bone. Still complains of the throbbing pain in the temples ; does not perspire at night ; tongue somewhat furred ; appetite good ; bowels open. The expiratory murmur is heard prolonged in the right infra-clavicular region.

The patient ascribes his loss of flesh to want of rest and pain. Two grains of iodide of potassium three times a day, and compound soap pill every night.

Eighth day.—Does not feel any better ; has more pain in the head and over the sacrum ; perspires much at night. Emplastrum lyttæ on the sacrum.

Tenth day.—Pulse 72, regular ; respiration 24. The patient cannot say whether he is relieved by the blister ; still complains of headache. *Full control over urine and fæces.* Appetite good. Urine, specific gravity 1.030, very turbid, and containing a large quantity of lithate of ammonia, very acid.

Thirteenth day.—Pulse 72, regular ; says that he is unable to rotate his head, except with great pain over the forehead ; can walk better ; passess his urine naturally ; cold sensation in the umbilical and hypogastric regions. A blister to the neck.

Eighteenth day.—Pulse 72, regular ; sleeps very well ; pain in the cervical region less ; can move his head better ; pain over the frontal bone still remains ; tongue pale and moist.

Nineteenth day.—Is much better ; can rotate the head with ease, and move about at pleasure.

Twenty-second day.—Much better.

Twenty-third day.—Discharged cured.—*Ibid.*

Case of Abscess in Bone.—By Mr. Coulson.

The patient, a traveller, thirty-three years of age, of average stature, temperate habits, good complexion, and blue irides, was admitted into St. Mary's Hospital, on the 7th February, 1854. He had suffered from pain in the left shin-bone, for twenty years previously ; the pain was uniformly aggravated at night. About eight years back the bone became enlarged. He never complained of pain in any other bone, never had rheumatism or syphilis, and there was no evidence of any hereditary taint. He had a gonorrhœal affection six years preceding the above date. At the period of his admission, the bone was much expanded at its middle third, and in this situation the integument was red, swollen, tense, and tender to the touch. His system was under the influence of mercury. The skin presented the cicatrix of an incision which had been recently made by a surgeon in the country. Mr. Ure divided the integuments down to the bone, ordered hot fomentations, and laxative doses of sulphate, with carbonate of magnesia. By the following day the local tenderness had subsided, but the patient complained of throbbing pain at the upper part of the shin-bone. On introducing a pointed probe into the opening, it penetrated the surface of the bone, and gave vent to a drop or two of pus. For several days he continued to suffer from pain in the upper third of the leg, and at each side of the ligament of the patella, of a sharp, shooting character. His pulse was quick and irritable, and his nights were much disturbed. The remedies employed were small doses of iodide of potassium conjoined with bicarbonate of potash, an opiate at

night, together with hot poultices to the limb. On the fourteenth day after his admission, Mr. Ure finding that the symptoms did not yield to the above means, determined to make a free opening into the medullary cavity of the tibia. For this purpose, he enlarged the wound to the extent of three inches, and at each extremity formed a V-shaped flap. Having dissected back the integuments, and detached a portion of the periosteum, which was thickened, and of a reddish brown colour, he removed, with the crown of a small trephine, a circular disc of bone from the anterior wall of the tibia. This was immediately followed by a discharge of pus from the medullary cavity. The wound was simply dressed with a pledget of wet lint. On the following day the pain had much diminished, the pulse was 96, the skin cool; he had not slept well, in consequence, as he believed, of having been placed in another ward. For several days there was progressive amendment, he was able to sleep without the use of opium, there was free discharge of healthy pus from the wound, and the limb, although stiff, was exempt from pain. Towards the eleventh day, however, he became feverish, the vicinity of the wound was the seat of diffuse cellular inflammation, which was promptly relieved by incision, and other suitable means. After this attack, he rapidly improved in general health, but continued to experience occasional pain at the upper part of the shin-bone. Mr. Ure, believing the pain to depend on some inflammatory condition of the periosteum, on the 8th of April, directed the topical employment of tincture of iodine every other day. Under this treatment the uneasiness gradually subsided, he completely recovered the use of his limb, and returned home, at his own request, on the 28th day of the same month.

New Account of the Fœtal Circulation.

Professor Macdonald, of St. Andrew's, read a short communication on the fœtal circulation, in reference to a paper by Mr. H. Lee, communicated to the Society on March 13, as he considered that these cases fully illustrated the views which he had long held as to the course of the fœtal circulation which he had explained at the last Birmingham meeting of the British Association. The blood in the earliest stage of the fœtus, even before the heart is formed into a tube, flows to the organ, where it is prepared for nutrition before it returns to promote the growth. Hence he supposed that the venous blood of both cavæ, as well as the visceral venous blood through the vena porta, is sent to the placenta by the umbilical vein, which ends in the minute beginnings of the umbilical arteries, convoluted in the placental cells, and bathed in the pure blood, but without any vascular connexion with the maternal system. The umbilical arteries thus formed transmit the arterialised blood by the hypogastrics into the aorta, from whence it is distributed to the head, upper extremities, and rest of the body, in its usual course, only a small part from the valvular obstruction finding its way into the heart, for the purpose of stimulating its action in aid of the circulation. There may be a slight alternating motion of the blood by means

of the ductus arteriosus, like what occurs in insects, the valves not entirely preventing the course of the blood into the auricles. The foramen ovale will allow the contents of the left auricle to blend with the venous blood of both the cavæ, as well as the visceral through the porta in the umbilical vein, as above explained, and thus securing the transmission of the whole venous blood when duly hepatised through the purifying organ of the placenta, then playing the part of the dormant lungs. The same relation, therefore, subsists in the fœtus as in the adult between the hepatisation and arterillisation, while the course of the blood in all the main arterial branches is the same, although the course in trunk of the aorta itself may be reversed. The difficulties of this proposed system are surely less than that which has so long been adopted, where only a very small part of the blood can be arterialised, and that is, on entering the fœtus, entirely mixed with the venous blood from the whole body, except what is sent from the superior cava into the right ventricle, to be sent by the pulmonary artery and ductus arteriosus into the aorta beyond the subclavian, to supply the whole lower trunk and extremities and the placenta; while the mixed blood of the lower cava with the umbilical current, crosses the former current in its way to the foramen ovale, to reach the ascending branch and arch of the aorta, to supply the innominata, carotid, and left subclavian arteries. Dr. Macdonald, by means of a diagram, explained his views, as it is not easy to follow the subject without illustrations.

Dr. Snow invited the author to state what vessels in the cord pulsate synchronously with the fœtal heart, and expressed his own conviction, that they were the arteries only. He did not adopt the author's views.

Dr. Pavey had been accustomed to teach views directly opposed to those of the author, and could not see the use of the fœtal heart if the latter were correct.—*Medical Times and Gazette, May* 6.

END OF THE THIRD VOLUME.